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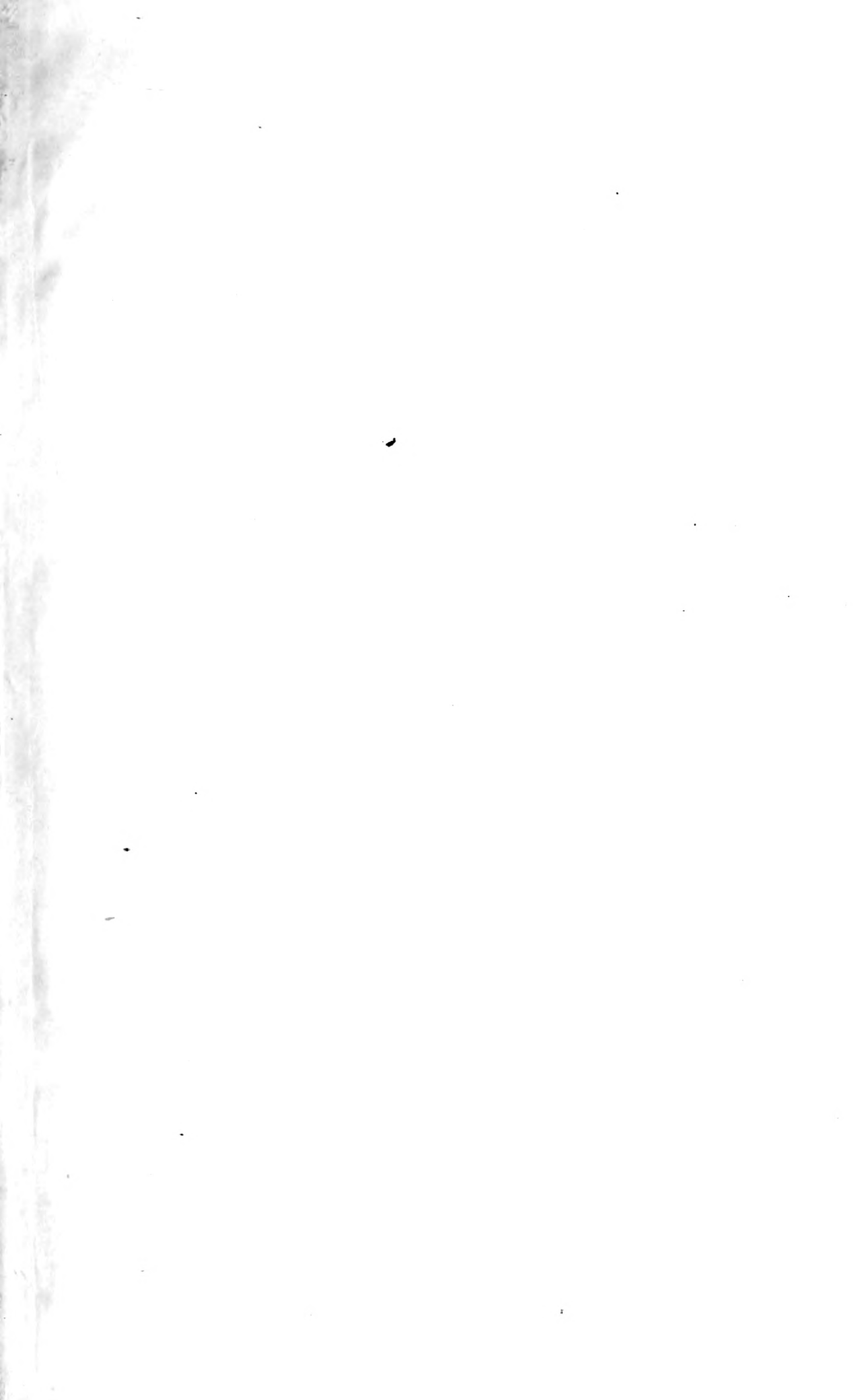
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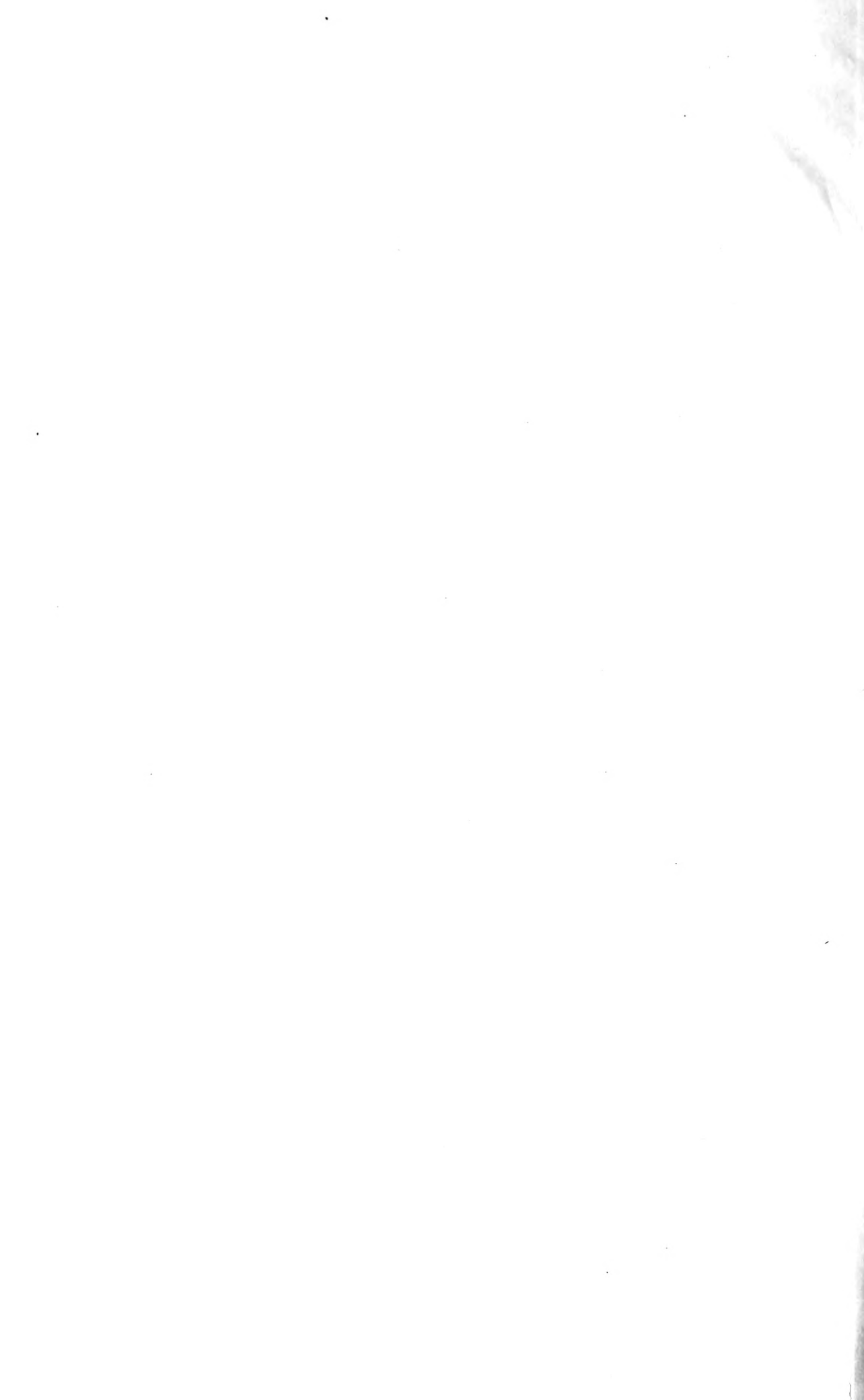
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No. 5527

1649 United States 1643
Circuit Court of Appeals

For the Ninth Circuit.

J. M. OWEN and J. L. BALES,

Appellants,

vs.

PERKINS OIL WELL CEMENTING COMPANY,
a corporation,

Appellee.

Transcript of Record.

VOLUME 2

(Pages 497 to 992 Inclusive.)

Upon Appeal from the United States District Court for the Southern
District of California, Central Division.

FILED

AUG 26 1929

PAUL P. O'BRIEN,

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(Testimony of Erle P. Halliburton)

paying back royalties; and in that case we gave them contracts waiving back royalties. I believe there are only two or three forms of contract, but in substance they are the same. Some of the contracts call for Halliburton to do all of the cementing and some of them permit the operators to do their own cementing under a royalty of \$75 per well.

(Additional list received in evidence as Plaintiff's Exhibit 12.)

These are all of the operators in Louisiana and Arkansas; and all have acquiesced in the validity of the Perkins patent.

(Stipulated that the suit against the Standard Oil Company of Louisiana was settled, which was brought by Halliburton, and the Standard Oil Company signed a license agreement under the patent.)

(336) May 10, 1927. 10 A. M.

Q Mr. Halliburton, you have already stated that you are familiar with this Inspeep plug in connection with this case and in connection with the case involving the same plug in Texas. There is a claim made here for the value of these dogs to prevent the plug from going back, as you might call it. Will you explain to the Court, from your standpoint and your experience in connection with oil well cementing, your opinion as to the value of any function that could be performed by those dogs on that plug, so far as preventing the plug from returning up the casing?

A As the plug handed me is constructed in such a manner that it could not withstand any great, or resist any great, pressure exerted against it to shove it up the

(Testimony of Erle P. Halliburton)

hole, it couldn't serve that purpose; and, even if the plug was so constructed that it couldn't come back up the hole, there would be no value in connection with it, but rather a detriment in cementing, since, if the plug was pumped all the way to the bottom and it was desired to permit the wash or frothy cement at the top of the column (337) to come back into the casing, allowing the plug to rise say 20 or 30 feet up in the casing, it would be impossible to do that, since the plug would not come back. On the other hand, without any means of holding it down when it is maintaining its position in the bottom of the well, it is forced to bottom and it strikes the bottom, indicating all of the cement is out. If it is desired then to leave some cement in the casing before the casing is lowered to bottom, a valve at the casing head can be opened, which will permit the fluid within the casing holding the plug down to flow out, permitting the plug to come back up the casing; provided, however, that the fluid on the outside of the casing is of a heavier density than the fluid on the inside of the casing. Where any considerable amount of cement is used, and the fluid used in forcing the cement down and the fluid above the cement on the outside are the same density, there is usually a pressure on the casing that would permit the plug to come back up in the casing when the pressure is released. There is no value in being able to take the so-called tight head or casing head off of the casing until after the cement sets. In cementing it is necessary to have a head, that is, a tight head, to confine the pressure so the cement can be forced out. The pressure required to force the cement out, as a usual thing, is many times more than the pres-

(Testimony of Erle P. Halliburton)

sure created by the cement trying to get back into the casing after it has been forced (338) out. This is due to the friction of the fluid passing down through the casing and up the space outside thereof, even where the fluid is of the same density on the inside as it is on the outside of the casing and you are just circulating. In deep wells the pressure runs as high as four and five hundred pounds per square inch. Cement being plastic, it usually takes considerable pressure to force it out, due to this friction, and the moment coagulation sets in, which is usually within an hour after the cement has been placed back of the casing and allowed to remain undisturbed, the cement becomes a solid matter or reaches what we call its initial set. It is then no longer fluid, and therefore will not return into the casing even though the pressure is released. This is borne out by the fact that the casing head can be shut in with a pressure of a thousand pounds on the casing head. If there is a small leak, the pressure soon leaks off, and the cement does not return back in the casing, but remains on the outside. If it wasn't for the fact that the cement coagulates, these small leaks would keep the cement agitated, and it would never set.

Comparing the plug I have in my hand, Exhibit A to the affidavit of Paul Paine in this case, with the Inskeep plug that was involved in the case in Texas decided by Judge Wilson, (339) the only difference in this plug and the plug we obtained for that trial is the difference in sizes. The general construction is the same.

I know Hern Harper, the witness who testified in the case in Louisiana. I heard him testify that I offered and he agreed to support this patent down in Louisiana if I

(Testimony of Erle P. Halliburton)

would make him manager of my business down there. I heard him testify to the circumstances under which he first became acquainted with me. (340) I had heard of Mr. Harper prior to the time. Ike Jordan, my representative in Corsicana, called me over the phone and explained to me that Mr.— So in a telephone conversation with Mr. Harper, he being in Corsicana and I in Duncan, Oklahoma, he told me that he wanted to meet me and discuss the Arkansas and Louisiana situation. I was going to Corsicana and agreed to meet him in the Jefferson Hotel in Dallas. (341) That was before *me* gave his testimony. That was the first time I ever knew who he was, that is, to know him. He called me up; he approached me. And I met him in the Jefferson Hotel in Dallas, and we sat down, and I asked him what part of the Louisiana situation he wanted to talk about. I had previously notified him to cease infringement, and served him with a notice, a written notice. And he explained to me that he and I could make a whole lot of money in Louisiana and Arkansas; that he was the only one in that entire territory that had used plugs prior to the alleged invention of Mr. Perkins, and that the operators were after him every day, but he wanted to discuss it with me, and he wouldn't give them an affidavit and wouldn't testify, provided that I would agree with him that I would make him manager of my business in Arkansas and Louisiana. I explained to Mr. Harper that I wouldn't be interested in making him manager under any such conditions; that if the patent was invalid I wouldn't have to pay royalties; that he couldn't have been the only one to refuse to testify, or that he could testify, or give his

(Testimony of Erle P. Halliburton)

testimony in the interests of the validity of the patent, and that I wouldn't care to enter into any such arrangement. He after that called me up several times and tried to influence (342) me to enter into an arrangement with him, and had his lawyer write me two or three letters—Clifton Davis—who testified in this case. And that is about as far as the matter went, other than that I refused to enter into any such arrangement. It was all his proposition and was not mine.

ON

CROSS EXAMINATION

Mr. Halliburton testifies:

I would be unable to state just when my first conversation was with Mr. Harper over the phone, but it was prior to the time of the taking of his testimony some months. Right after that there appeared in the Shreveport Times an article regarding this case, and I could tell from that article just about the date, if I knew the date of that article. It was prior to that article that is already in evidence. It was just a few days prior to that article.

Q Isn't it a fact, Mr. Halliburton, that you told Mr. Harper and Mr. Harper's attorney and others down in that field that it was necessary, in order to invalidate the Perkins patent, to show a prior use not before the date of invention, which was October, 1909, but two years prior thereto?

(343) MR. L. S. LYON: We object to that, may your Honor please, as not cross-examination, and as not competent evidence in this case in any way. . . . I don't think it is competent (344) in any way. Certainly

(Testimony of Erle P. Halliburton)

it is not cross-examination. It is no part of this conversation with Mr. Harper.

THE COURT: The objection is sustained.

THE WITNESS: I talked to Mr. Harper several times, before taking his testimony, over the telephone, and I believe that I met him in his attorney's office before the taking of his testimony. As I remember now, I searched all of the records I could find in Louisiana, trying to find some records regarding cementing, and in a parish or courthouse there I discovered a suit in which Harper and McCann, Harper's attorney, had sued the Bush-Everett Company, a company which they had been drilling for, for failing to finish a well in accordance with contract. And I finally secured certified copies of the record in that case. And I discovered from this record that Harper and McCann hadn't used plugs in cementing wells. The testimony as to how they had cemented wells was set forth in this record, and this case was tried, I believe, in June, 1911, (345) and the well was cemented in December, 1910.

After getting this record, I went up to his office and discussed with him and told him that he hadn't used plugs prior to that time, and I think that was about the only time that I saw him prior to the taking of his testimony. I had been infringing the Perkins process from sometime in 1919 up until I entered into a contract with Perkins in December, 1922. I was using the plugs for every function set forth (346) in the patent, and I was infringing the patent verbatim. I was using one and two plugs for the purposes of separating the cement from the fluids in the casing and for the purpose of indicating

(Testimony of Erle P. Halliburton)

when the cement was forced down. We usually put cement on top of the plug, in that we washed out the tanks during the time the men on the derrick floor were putting in the top plug, and that cement usually went in on top of the plug, which, of course, served no real purpose. Sometimes there may have been cement on top of the plug and sometimes there may not have been.

I did not put in any defense to that suit by Perkins against myself. After a thorough investigation and after discussing the matter with you (Mr. Westall) at the time you were handling Wigle's case, I came to the conclusion that there was no defense, and that I should pay Mr. Perkins his demand, and I did so. I was represented by counsel in that case of Perkins against me and Mr. Steen. I had my brother-in-law, David F. Taber, from Chicago, Illinois, who is a member of the firm of (347) Isham, Lincoln & Beale. He was present at the time I discussed the defense with you. Isham, Lincoln & Beale are not patent attorneys. Brown, Boettcher & Dienner, a firm of Chicago, always handled the patent part, that is, the patent business, for Isham, Lincoln & Beale. I had previously discussed it with Mr. Brandon J. McCann, an attorney. He was a patent lawyer. Those patent lawyers advised me to settle, that unless I could find it was old, I had better settle, unless I could find it was used prior to the alleged invention of Mr. Perkins. Mr. Dienner, of Brown, Boettcher and Dienner, and also Mr. Davis, advised me to settle with Mr. Perkins, after a conference at which Mr. Taber was present. They specialized in patent law. They gave me that advice as early as September, 1920, and told me that I had no defense if Perkins

(Testimony of Erle P. Halliburton)

(348) chose to sue me. We discussed that, and I built up my business in the face of that, expecting Mr. Perkins to sue at any time. I had tried to get a contract from Mr. Perkins, after I was advised that I was infringing in the manner in which I was using the plugs. At the time of the settlement I had investigated the evidence that might be procured in Shreveport, showing the invalidity of the patent. Right after I went into business I began to investigate the possibility of a suit with Perkins. I had the assistance of all the larger companies, with whom I discussed the matter, and they were all familiar with the Perkins patent, more or less, and they themselves conducted independent investigations. I would be unable to state exactly when I first discussed the matter with Mr. Perkins. (349) I can fix the date of my discussion with my attorneys by the time I discussed it with Mr. Perkins. I think I was in Chicago in September, 1920, and that I met Mr. Perkins in Ft. Worth, Texas, at the Westbrook Hotel in October, about the first of October, because I remember I came back from Chicago and I was informed by my wife that Mr. Perkins was in Ft. Worth; and I either wired him or called him up and told him I wanted to come down and discuss with him the possibility of me securing a license from him. And my wife and I got on the train and went down, and that was the first time, I think, I had met and talked with Mr. Perkins since I left his services three or four years prior.

Q Isn't it a fact that your attorneys did advise you that you were not infringing the Perkins patent, and isn't it a fact that you settled that case merely because you had a patent of your own, and you had arranged an

(Testimony of Erle P. Halliburton)

advantageous trade with Perkins, and you were anxious to lend color to the validity of the Perkins patent?

A I don't know just how advantageous a trade it was. I paid him \$25,000 back royalty, and agreed to pay him \$25 royalty. I wouldn't care to do that if I had thought I could beat him, or that my patent was of such scope it would give me the business without the use of it. At the time I settled with Mr. Perkins I had a patent of my own, (350) but in September, 1920, when I was in Chicago, I didn't have a patent of my own at that time; and that was one of my reasons for my conference with Brown, Boettcher & Dienner, that is, Mr. McCann, Mr. Dienner, and Mr. Boettcher. Mr. McCann was a patent lawyer, too, with Brown, Boettcher & Dienner. And I was directed to that firm by my brother-in-law, David F. Tabor, of Isham, Lincoln & Beale. From then on, and even prior to that time, I had discussed with all of the different fellows that I knew that had worked in Louisiana what they had been doing down there in the early days, and most of the drillers that you discuss it with, of the old timers—each one would tell you he was the first one to ever use a plug. But my real investigation never started until after or about the time I had been sued. I was sued in November, 1922. Prior to that I had discussed my investigation with my attorneys, because I was (351) expecting Mr. Perkins to sue. I remember they filed a suit. I had a conference with Perkins in Tulsa the day before they filed the suit, and they told me they were going to Muskogee the next day, and I knew they were going there for the purpose of suing me, though they didn't state that. Then they came down to Ardmore,

(Testimony of Erle P. Halliburton)

I think it was the next day after they filed the suit, and I tried to get a settlement, and they wouldn't talk settlement. That was in November, 1922. Then I got on the train and went down in Louisiana, and discussed with Mr. Ed Todd and a number of the other operators the prior use down there. And at first they explained that they used it first down there; but when I asked them about the defense and the wells and for record evidence, they couldn't produce it. And then finally Mr. Ed Todd told me that he wasn't worrying about that anyway, because he had an agreement with Mr. Perkins by which he would give Mr. Perkins the cementing when Mr. Perkins put equipment down there, and that Mr. Perkins had agreed not to bother him; that he said, "Oh, Ed, go ahead and use it until I get equipment in there."

The document you now show me bears my signature; it is my letterhead. (352) I wrote that letter, addressed to Westall & Wallace, Attorneys at law, on June 20, 1922. That letter is self-evident that I was investigating then the validity of the Perkins patent.

MR. L. S. LYON: We object to reading the letter to the Court. I don't think it is admissible on any ground. Mr. Halliburton is not a party to this suit.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

(Letter received in evidence, marked Defendants' Exhibit A, from Halliburton to Westall & Wallace, dated June 28, 1922.)

THE WITNESS: In that letter I say: "My counsels, Brown, Boettcher & Dienner, of Chicago, Ill., and H. A. Ledbetter, of Ardmore, Okla., after a careful examination

(Testimony of Erle P. Halliburton)

of the Perkins patent, inform me that I have nothing to fear from Perkins." At that time that was true to this extent: that I had discussed with them in connection with the securing of a patent the processes of cementing wells, but after a further investigation, and at the time I was sued, why, those same attorneys changed their minds and advised me to settle, (354) and they advised me even prior to that that if I could get a reasonable settlement it was up to me, that is, from the commercial end, although that they might successfully defend a suit against the Perkins Company, if I varied the process. I say in that letter: "During the time I worked for Perkins I was informed by people not well versed in patent law that the Perkins patent was invalid for various reasons, the most common being that his brother Frank Perkins, now deceased, was the original inventor, the other being prior art, claiming that the method of using 'plugs' in connection with the cementing of oil wells was in common use in Louisiana prior to the time that Perkins filed his application, and the idea was brought from Louisiana by a man now associated with the Perkins Oil Well Cementing Company." I have heard that the man now connected with the Perkins Oil Well Cementing Company was Mr. Cy Bell, and as far as that letter is concerned the reference is made to him. But my investigation since is that he didn't.

ON

REDIRECT EXAMINATION

Mr. Halliburton testifies:

By the time I settled with Mr. Perkins and had heard so many different stories, and so forth, I found, after

(Testimony of Erle P. Halliburton)

running them down, they were not true. I decided that the Perkins patent was valid and I would not be able to invalidate the patent in court, and that is the reason I entered into the contract, paying the \$25,000 back royalty. (356) I went down to Louisiana in November, right after Mr. Perkins and Mr. L. S. Lyon left Ardmore, and I made a personal investigation. Mr. Ed Todd was vice president and in charge of production for the Standard Oil Company of Louisiana. The Standard Oil Company of Louisiana would be classed as one of the large operators down there, possibly not the largest. I talked to other men who had been in Louisiana in the early days, on that trip. I had done some cementing for a number of the operators down there, Mr. Crawford, of Crawford & Sebastian, who testified in this case, when he and Hugh West were partners. That is the Mr. West that I sued up in Oklahoma. I had a decision against him, which is in evidence here. He was a partner with a Mr. Crawford, who has testified in this case. I talked with Mr. Crawford and Jim Clark and a number of operators. Then after my investigation there I came out here and discussed with Mr. Westall—my attorney and I—his defense, in the Wigle case. (357) That was before the Wigle case was tried and before I had settled with Perkins. We investigated the possibilities of that case before we settled with Perkins, because we felt if his defense was such that we thought he would defeat the Perkins patent, then we would not settle, and I would not pay this demand of Mr. Perkins.

Q Now, in regard to the independent investigations that you say were made down there by the larger oil

(Testimony of Erle P. Halliburton)

companies, on this same question, will you state to the Court what companies made those investigations, how the investigations were made, what results you obtained from them, and the circumstances relating to the investigation, that you referred to on cross-examination?

A Before I settled with the Perkins Company I had gone to the Magnolia Petroleum Company and the Humble Oil & Refining Company and the Texas Company and the Pure Oil Company, and a number of the larger operators, and explained to them if they didn't give me support that I could not afford to fight Perkins. So they said, "Well, go ahead and settle with him, then." They could lick me as well as could Perkins. So after I had settled with Perkins I had to serve notice on them, written notice on some of them, that they were infringing, and then they began to investigate. (358) And finally they decided, or apparently they decided, they didn't want to fight the patent, and suggested the organization of a Company to cement their wells. And I put into that company the equipment and my contract with Perkins, and I took out 1780 shares of stock.

Reference has been made to Mr. J. Edgar Pugh. He is one of the principal owners of the Sun Oil Company, and was president of the American Petroleum Institute a couple of years ago.

Q You were present when Mr. Pugh testified in this case that he had had a thorough investigation of this Louisiana situation made, and came to the conclusion there was no truth in this story of the early use of the plug before he bought or took the stock in the Halliburton Company. Will you explain to the Court now just what

(Testimony of Erle P. Halliburton)

stock Mr. Pugh or Mr. Pugh's company had, and just what consideration was paid for it, if any?

A The deal wasn't entered into with Mr. Pugh. Mr. Weems, counsel for the Sun Oil Company, agreed for the Sun Oil Company to buy a hundred shares of stock and pay \$10,000 for it. That was the value of the stock at that time. And he bought this stock for the Sun Oil Company, and the stock is carried on the books of the Halliburton Company in the name of Mr. Weems, trustee for the Sun Oil Company. There is no stock in Mr. Pugh's name, nor has Mr. Pugh any stock or anything else from the Halliburton Company or from me.

MR. L. S. LYON: For the purpose of the record and in anticipation of any showing that Mr. Westall may make, and taking Mr. Halliburton out of order as a rebuttal witness for that one purpose, I would like him to state, as he is not going to be here, whether or not there were any side agreements, understandings or arrangements between any of the defendants and him or anyone connected with him, in regard to these two cases that were prosecuted, and of which we have the record here; that is to say, the one that Judge Cotteral decided and the one that Judge Wilson decided. I mean outside of the record.

Q Was there any agreement, understanding or arrangement of any kind between the parties outside of the record in those cases?

A No, there was not any agreement. Both of those cases, as far as I was concerned and my company was concerned and the plaintiff was concerned, were fought on their merits as an actual and real contest.

(Testimony of Cyrus Bell)

TESTIMONY OF CYRUS BELL, FOR PLAINTIFF.

CYRUS BELL,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is Cyrus Bell. I am forty-nine years of age. My residence is 1709 Buckingham Road. My occupation is that of oil well drilling contractor. I have been working in the fields since the latter part of 1901. During that time I have held executive positions in the business. The Bienville Oil Company, of Mobile, Alabama, was the first superintendent job I had. That was in the Jennings field, of Jennings, Louisiana. And the next official job I had was with the Standard Oil Company of California. I came to California in August, 1908, as a (362) driller for the Standard Oil Company, and I worked at Altamont for some four or five months as a driller. I came out with this group of drillers that was brought out by the Standard to introduce the rotary method out here, that was referred to by Mr. Little and Mr. Todd.

I worked at Altamont for the Standard Oil Company until along the first part of January; then I was transferred to the Midway district as a tool pusher. It was in January, 1909, I was transferred. Then I worked as a tool pusher until I think the first part of January, 1911. Then I was made superintendent of the Midway division, and I was superintendent of the Midway division to July, 1913, and I was transferred to Bakersfield and made general superintendent of what they call the northern district. The northern district is the Standard properties north of the Tehachapi Mountains, or the Tehachapi range. I occupied the position of general superintendent until the

(Testimony of Cyrus Bell)

latter part of 1915, when I transferred to the San Francisco main office. My position there was assistant general manager, having charge of all the operations of the Standard Oil Company in the United States, which consisted of California mostly. During the time I was up there they did some work in Colorado, some in Washington—the State of Washington.

Referring to my experience from 1901 to 1909, when I came to California, the first job I had in the oil fields at Beaumont or Spindle Top was pumping water for a drilling outfit, with one of these Armstrong pumps. I followed that position for I guess some ten days or two weeks, and I was transferred up on a drilling well. The number of the well was—it was the Guffey & Galey Company at that time. It was the Gladys City No. 1, Guffey & Galey, Spindle Top. I was a rotary helper there until we completed the well; and I might say that I was working for the Hammil Brothers, Jim and Al Hammil, who were contractors at that time. They had another brother who was working for another concern. I was transferred from this job onto this other brother's work, the well that was drilled between Spindle Top and Beaumont, about half way, I would say, between the two places. I worked there with Curt Hammil for some two months, and was offered a drilling job down south of the Spindle Top field by a fellow by the name of Knott, A. R. Knott. We called him, or he goes under the nickname of "Red" Knott. (364) I drilled on that well until completed to a depth of about 1200 feet. So I transferred back to the Spindle Top field proper, worked on one well there located down close to Gladys City. The

(Testimony of Cyrus Bell)

well was being drilled under contract by Jones & Kuhn. We completed that job, then I got a drilling job in Louisiana, in the Evangeline field at Jennings, Louisiana. I went from that job to Citronale, Alabama, about thirty miles out of Mobile on the Mobile & Ohio Railroad, for Mr. Kuhn. Mr. Kuhn was superintendent of the Jones & Kuhn Drilling Company. He was drilling a well up there close to the little town of Citronale. I acted as driller on that job with this fellow Knott, "Red" Knott, that I spoke of before. I came back, as I remember, from Alabama to Louisiana and stayed a short time, and came back here to the Texas fields. Later I went back into Louisiana with the Bienville Oil Company and was made superintendent of their property there in the Evangeline field. While I was on that job Mr. Frank Maxwell, of the F. M. Jones Supply Company, offered to stake me to a couple of drilling rigs if I wanted to go to contracting. He said he had some contracts that he could turn to me. So I accepted the offer and went to Batson, Texas, and the first well I drilled on the contract was for the Santa Fe Railroad in the Batson field. The next contract I had was at Waller. Waller is about thirty miles out of Houston on the H. & T. C. Railroad. We drilled (365) that hole down to the required depth, contract depth. We moved from there to Waukegan. Waukegan is on the Santa Fe out of Conroe, about 50 miles out of Houston on the H. E. & W. T.; that is, the Santa Fe crosses the H. E. & W. T. and this well at Waukegan was just a short ways from Conroe, about three miles east of Conroe. We drilled that well down. Mr. Maxwell and I drilled that well in partnership. We leased the land and

(Testimony of Cyrus Bell)

drilled it ourselves. While we were drilling that well, Batson, of the Humble field, came in, that is on the H. E. & W. T., some sixteen or eighteen miles out of Houston. We drilled one well there under contract, and then drilled a well that we owned ourselves. A fellow by the name of Ryan organized the Elkhorn Oil Company, and the owners of the stock in that company were Mr. Maxwell, Mr. Ryan and myself. (367) We got a nice well, which produced a day or two and went to water, and, myself personally, I was pretty well stripped of funds, and took a drilling job on what they call the Brooks & Sharp ten acres in the eastern part of the Humble field. Drilled one well with a rig that belonged to Brooks & Sharp. After that well was completed, they gave me two contracts on this same property, one contract for my rig, and allowed me to use the Brooks & Sharp rig to take care of the other contract. I drilled some ten or eleven wells on this particular piece of property, and the field had gone to water mostly. Brooks had some property over in the Dayton field, which is some thirty or forty miles south and east of the Humble field, that is the approximate distance. I wouldn't say just how far it is. Judge Brooks organized what he called the Brooks-Bell Oil Company. Judge Brooks, who was at that time treasurer of the Producers Oil Company, had a third interest in the company. His brother, C. W. Brooks, who was interested in the oil company, had a one-third interest, and I had the other one-third. We drilled some seven or eight wells in this field, and as I remember we got three producers. At the end of that little campaign I had spent all the money I had made in

(Testimony of Cyrus Bell)

the Humble field contracting, so I told the Judge that I thought it was about time for me to get out and get a job. He said, "You might just as well be hung for being a sheep as a lamb, so we will drill (368) some more." We drilled some more, without success, without getting commercial oil. I went from that job to Hoskins Mound, for Thomas H. Nevin & Son of New York. I think they were railroad construction contractors. We drilled several wells there on that property. I was superintendent on this Hoskins Mound property, worked there for several months, and went from there to Jennings, Louisiana, or to the Evangeline field at Jennings, Louisiana, and drilled some wells under contract with Ziegler & Rowsen, of which I carried a small interest; that is, they carried the interest for me. That was along the first part of 1908. I came from the Evangeline field to California. As I remember, I left Jennings, Louisiana, on the 13th day of August, 1908.

I would say there was nothing unusual about the fact that I moved from one field to another down in those Gulf Coast oil fields.

Q Don't they move from one place to another? And what is the practice as to knowing what is going on in different fields among workers at large; don't they exchange information, talk everything over?

(369) A More or less. At Humble the water came in that field, and you could—we used to talk about it considerable, and there would be a well here to go to water today, and within 400 feet possibly a well tomorrow would go to water. It seems that the water came in from one direction and kept working on through the field. It has been more or less a question as to whether that was because the water had not been shut off above

(Testimony of Cyrus Bell)

the point where the casing had been landed. Some people think the water was possibly in the sand, and some people think that possibly the water comes in because it had not been shut off. All the oil fields made more or less water. I think one reason was that they was not drilled properly. It was a subject that interested the different men that were working there, the superintendents and so forth, at that time seriously.

Q What was their practice, if any, in regard to discussing the methods or possibilities of shutting out that water, among themselves throughout these fields?

(370) A Well, in the Humble field, I went into Houston, stayed over night with my family—not every night in the week, but the majority of the nights, and I traveled on the train with different operators in the field; namely, Walter Sharp, who was president of the Producers Oil Company. and a partner of Judge Brooks that I testified to, Brooks & Sharp that I did some work for; Judge Brooks, who was treasurer of the Producers Oil Company at that time; Walter Fondren, who is now vice president of the Humble Oil Company, was a producer in the Humble field; William F. Farrish, who was president of the Humble Oil Refining Company at the present time; Mr. Farrish's partner, a man by the name of Blaffer, who I think is one of the officials of the Gulf Oil Corporation, located in the Houston office at the present time; Murray Doane, of the Sun Oil Company; and I have got a number of men that I have talked with and heard talk regarding the water problem in that particular field and other fields, at that time. They were talking about a way or a means to control the water.

(Testimony of Cyrus Bell)

(371) To the best of my recollection, I have never heard the word "cement" used in shutting off water, or shutting water out of an oil well, until after I came to California. In those days, where they were having that trouble, they were trying to shut off the water by formation shutoffs. That means landing the pipe. In that country there is a very sticky formation, they call it a blue gumbo, and it seemed to be a little tougher and stickier just above the oil sand than it was anywhere above that in the hole, and we used this other casing down in this formation. I remember in the Dayton field, in these wells I was drilling over there for our little company, that we used a nipple 18 or 20 inches below the bottom collar; we did not use a shoe, as we use nowadays; we had a collar, and we put this nipple below and made a small hole. And I had a drive stem made, and as I remember it was made out of 2-inch round iron, and we had a drive shaft made, and we drove this casing, we would drive this nipple into this tight hole, so that it would shut the water off.

(372) My first knowledge of cementing oil wells to shut off water was in the Midway district after I came to California; it was along the first part of 1909. They had two ways of doing the cementing: one by dump bailer and one by tubing. I don't suppose it is necessary to testify as to how those systems were carried out. I heard the evidence of Mr. Maddren and Mr. Paine, and all of them, and I would take all of that as true regarding the dump bailer and tubing method. And the first time that I knew of the Perkins system was the latter part of 1909. Mr. Perkins came to the Midway district

(Testimony of Cyrus Bell)

to work for the Standard Oil Company sometime the first part of 1909, and he was there some five or six months in charge of production. During our cementing operations there, Mr. Perkins gave us what assistance he could, and he had had a great deal more experience in the oil business than the majority of boys working there. In fact, I think more experience than anyone working on the property at that time. (373) Mr. Perkins left Midway, or Moron, the name of the town at that time, and I understood that he came to Los Angeles. The next time I saw him he had a set of blueprints describing the plug that they now call the Perkins system, or a part of the Perkins system. As I remember, the first wall that I saw cemented was Well No. 3 on Section 10, by the Perkins process. That well was being drilled with a rotary, and I was tool pusher for a rotary tool. The next well, as I remember, was on Section 28—old Section 28, we call it. The Standard had two sections there that carried No. 28. This was the section between Taft and Maricopa, about midway, on Well No. 2, and from that time on I witnessed more or less of the cementing jobs on the Standard property there in the Midway district, up until July, 1913, when I was transferred to the Bakersfield office. For the purpose of identifying what I mean as the Perkins process, I can accept the prior descriptions that have been given by Mr. Little and Mr. Perkins of how those wells were cemented. These other men that came out from Louisiana with me, and others that followed, to introduce the rotary system in California for the Standard Oil Company, I heard Mr. Todd's testimony. (374)

(Testimony of Cyrus Bell)

Q Will you state to the Court if at any time any driller, that is, in those years 1909, or '10 or '11, or any other worker, came to the Standard Oil Company in connection with that program of introducing the rotary method of drilling in this country, that as far as anything you could tell from your connection with them as foreman or tool pusher and so forth had any prior knowledge of how to use the plug method of cementing wells?

A Not that I know of. I never heard of any such thing. When these wells were cemented by these different men, it was necessary to teach them how to do the cementing with this Perkins method. It was necessary to instruct them as to how to mix the cement and handle the plugs.

The statement has been made here in Court that there was some story around in the oil industry that I brought this process to California from Louisiana. The first time I ever heard of that was through Mr. Lyon in Shreveport, Louisiana; when this testimony was taken back there, this record out here in court, Mr. Lyon showed me where he had made a note on a certain date, (375) I don't remember the date, in a little pocket memorandum he had, and there was a fellow by the name of Clark, Jim Clark, a boy I used to know, who worked for the Sun Oil Company in the Humble field; he also worked for the Sun Company in the Dayton field; he told Mr. Lyon, and Mr. Whitney I think was with Mr. Lyon, that I brought that idea to California and gave it to Mr. Perkins. I can truthfully say that is the first time I ever thought of it or heard of it in my life; that is, of me bringing this idea from Louisiana to California.

(Testimony of Cyrus Bell)

I would say the Standard Oil Company standardized on the Perkins method for its water shut-off operations when they began to use it, all regular casing cement jobs would be the latter part of 1912 or the first part of 1913, as an exclusive method. They had been using it before that and trying it out, and I cannot fix the date, but I know when instructions were given, they were given in San Francisco at a meeting we had up there of all the superintendents in California that worked for the Standard firm, who were called to San Francisco for a general conference, (376) by direction of J. M. Atwell, who was manager of the production department at that time. I think there had been some wells cemented before the Standard cemented their first well. The first well I remember, I am almost positive I am right, was Well No. 3 on Section 10, and No. 2 on 28, in the Midway district.

I am interested in the Perkins Oil Well Cementing Company as a stockholder. I would say it was in 1911 I acquired that interest. The Company had cemented some wells prior to that time by the Perkins method, but it was before it was adopted. The fact that I owned this interest in the company (377) had nothing whatever to do with the Standard Oil Company adopting the Perkins method. To my knowledge the Standard Oil Company has no interest in the Perkins Company, nor has it had at any time.

Q Will you just explain to the Court very briefly how you came to get interested in the Perkins Company?

A Well, Mr. Double, who was president of the Union Tool Company and owned an interest in the Perkins patent, in the system (the man who is named in the patent

(Testimony of Cyrus Bell)

with Mr. Perkins) and I conceived the idea of a special gripping device for a rotary, and Mr. Double got the patent on that rotary device for me. I was down here off of Fourth Street one day at the Union Tool Company plant, having some tools or equipment, or something of that kind, made, I don't know what it was, and I talked with Mr. Double, and I told him I would like to trade him out of his interest in the Perkins Cementing Company. He says, "What have you got to trade?" I says, "I have got the interest in this rotary gripping device." "Well," he says, "that interest is more by a sight than the Perkins Cementing Company idea." "Well," I says, "I think the Perkins Cementing Company has possibly a better future than this gripping device." I wanted to get his (378) entire interest in this Perkins process for my interest in the gripping device. But he told me he would let me have one-half, if I remember, of his interest. Anyway, it was 1245 shares out of 5000 shares of the Perkins Cementing Company stock. That is the way I acquired the interest in the Perkins Cementing Company.

I am acquainted with most of these men who have testified in this case in regard to the use of the plug method in Louisiana. I knew them when I was down in that country at the time.

Q Will you tell the Court, give such explanation as you want, how you feel, or what is your firm conviction, if you have any, as to whether or not that testimony in regard to those operations, in which it is stated the plug was used, is correct?

MR. WESTALL: We object to that as irrelevant, incompetent and immaterial, attempting to have—

(Testimony of Cyrus Bell)

THE COURT: Sustained. (379)

THE WITNESS: I knew and worked in the same district with several of the boys who have testified in this case, before I came to California. I knew of Walter George, who gave testimony there, but I didn't know him very well. Hern Harper and Slim Crawford. I have known them for a long time, and know them very well. I didn't know Fred Kyle. I knew Billy Wolfe—W. C. Wolfe. That was one of the fellows I was trying to think of, Billy Wolfe. Yes, I knew Billy Wolfe. I met Billy Wolfe, as I remember, on Spindle Top. Billy Wolfe, I think, was raised in Corsicana, the same part of the country where I was raised myself.

(380) At no time prior to my coming out here to California did I ever hear any of those men make any reference to this plug method of cementing, or its use in any manner. The different men were around these different fields when these water troubles were going on.

Q Will you state whether, from your knowledge of conditions down there in that territory at that time, the plug method of cementing could have been in use in Louisiana generally, or to any large extent, as one witness I think here says every well after 1908 that he worked on it was used on, without it having been known in these other fields where water was being encountered,—difficulties—without you in all probability having known of it?

A I would say if it was being used even in one district, that I would have heard of it. The most of the operating companies operated out of Beaumont and Houston. I mean, when I say the operating companies, the companies that operated in Texas, operated in Louisiana,

(Testimony of Cyrus Bell)

the different fields. And I feel confident that if the plugs had been used to any extent I would have heard of them.

The early practice with the Perkins plug method by the Standard Oil Company, in regard to (381) taking off the circulating head before the cement had set or leaving it on the well, was that the casing was handled or equipped a little different from what it is today. They use what we call the plain casing shoe. This shoe is reamed out on the inside; it is on the bottom of the pipe; it is reamed out on the inside, so that when you drill below it your tool that you are drilling with won't hang up on the bottom of it. But after the cement was pumped into place, they would set this down on the bottom of the hole, and this shoe would make a seat around on the bottom of the hole and keep the cement from coming back into the pipe, unless there should happen to be a boulder or something like that on one side of the hole to keep it from seating all around. And for that reason—and another, the wells were much shallower in those days than they are now, and we did not use as much precaution then as we do now in drilling the wells. On those shallow wells, and where they used the straight shoe, I would say nine-tenths of the time that the shoe would make a seat in the formation at the bottom of the hole, and it would not be necessary to leave the tight head or circulating head on. (382) The fluid was always left in the hole, which had been used to pump the cement down the well, until the cement had set. Sometimes they would drill the cement out; in the early days they would even let the cement stand two weeks. A hole with 2000 feet of 10-inch water string, if you were to bail all the—that is, 10-inch lap well pipe that we used in those days, if you took

(Testimony of Cyrus Bell)

the fluid out, the pipe would collapse, and it was unnecessary to take the fluid out, and it tended to equalize the pressure on the outside of the casing. Today the heads are, I would say, most always left on.

Q Would that leaving the head on be satisfactory if you did not leave the water or the mud fluid or the drilling fluid in the casing while the cement sets?

A Well, I would say if you take the fluid out that it would be—if you take the fluid out at the bottom of one of those 4700-foot strings of pipe, it would not be necessary to try to go back and try to go into it, because it would have collapsed and the head, I don't think, would be of any value whatever, if the fluid was bailed out.

Q What would you say as to the value of being able at (383) this time to leave the circulating head off of the well, or take it off of the well before the cement set and after the cement had been pumped to position, because of your using a plug such as this Inskip plug, Exhibit A to the affidavit of Paul Paine? The statement has been made that it would be of immeasurable, or great, value to use this plug to hold the cement from backing up into the well and allow you to take the heads off of the well. What is your opinion as to that?

A Well, when that plug would be pumped down the well it has a clearance, clearance around here between this wall and the casing, and when it strikes the shoe guide or baffle plate, this cup, the pressure above that would bend this cup so that it fits out in the inside of this casing tight and shuts off the circulation. But if you take the head off the top, there is no reason why, if the pressure is greater on the outside of the pipe than it is on the inside of the pipe, why this cup cannot come

(Testimony of Cyrus Bell)

back to its normal position and allow the fluid to come right by, or shove it up the hole. Even if the plug held in place in the bottom of the hole, the fluid would come right by, if the pressure was greater outside, which it nearly always is, than it is on the inside of the casing. I don't think any plug that is constructed as this plug is would serve to keep the cement back of the casing satisfactorily. This is the only non-back-up plug that I ever saw that I know of, that I remember of. Well, there is a heaving plug. The heaving plug is made a little bit different to this. The heaving plug has a slip, there will be three slips on this heaving plug, and they will be as wide as from say here to here (indicating) then there will be a little space, and there will be another slip. Those slips would run the heaving plug to the bottom, and when you start back these slips take hold. It is like a sharp spear. You set those slips, but you have a bearing here that covers eight-tenths of the circumference of that pipe on the inside, and sometimes you will land those heaving plugs at the bottom of the bottom joint of pipe in the oil string, and you are about to go in there thirty days or later to clean out, and something goes wrong with your well. When you quit dumping you will find the heaving plug up at the top of the hole. That has three slips, that cover eight tenths of the inside diameter of the pipe. (385) I do not think those small dogs will stand a great deal of pressure.

Q Just one question on the point of value of being able to take off the circulating head at the top of the well, and assuming that that plug would work and render it possible to take off the circulating head while the cement was being set, what real value would that be, if any?

(Testimony of Cyrus Bell)

A The only value that I could see would be if a man that was doing the cementing only had a few plugs, or tight heads. rather—some of the operating company might furnish their own heads, but I do not think very many do. As far as the oil company is concerned, it would be of no value that the head was removed from the well, and it might be entirely the wrong thing to do, (386) because it would leave the hole open, for one thing, and it is necessary in a large majority of cases to keep the tight head on so that the cement cannot come back in the casing.

(387) (Afternoon session, 2 o'clock.)

THE WITNESS: In my affidavit that was used before Judge James in the injunction matter here, I referred to my presence on July 19, 1923, at a well on the property of the Texas Holding Company at Huntington Beach, where I observed a well cementing operation performed by the defendant, and that I examined the plug. I examined the plug that the defendant used on that job carefully. I would say it was very much the same plug as the plug which is here as Exhibit A to the affidavit of Mr. Paine. I don't believe I could point out any differences. I would say this plug, Exhibit A, (388) is the same design of plug as was used on that well, designed practically the same as the plug that was used on that well.

(Plug referred to as Exhibit A to affidavit of Mr. Paine received in evidence as Plaintiff's Exhibit 6.)

(The affidavits of Mr. Bell referred to above were agreed to be copied into the record as part of the direct examination of Mr. Bell, and the same are as follows:)

(Testimony of Cyrus Bell)

STATE OF CALIFORNIA,)
County of Los Angeles.) ss.

(389) CYRUS BELL,

being first duly sworn, on oath, deposes and says:

I am the Cyrus Bell who testified in the case of Perkins Oil Well Cementing Co. vs. Wilson B. Wigle and Vasco B. Cottengim, in the above-entitled court. On July 19, 1923, I learned that the defendant, J. M. Owen, was about to cement a well at Huntington Beach, California, for the Federal Drilling Company. Accompanied by Leonard S. Lyon and Henry S. Richmond, attorneys for plaintiff in this case, I arrived at this well at about two o'clock in the afternoon of July 19, 1923. The well was on the property of the Texas Holding Company, and was stated to be their well No. 3. The well was being drilled by the Federal Drilling Company. At the time we arrived at the well, the drilling crew were engaged in inserting the 8- $\frac{1}{4}$ casing which was to be cemented, of which about thirty joints remained to be placed in the well. A truck equipped with a cementing outfit was unloading at the well, and on this truck was printed "Owen Oil Well Cementing Company." We remained at the well until the casing had all been inserted, during which time a man arrived in a Ford machine, upon which was printed "Owen Oil Well Cementing Company." This man assumed charge of the cementing operation, and I am informed he is the defendant, J. M. Owen. The defendant Owen removed from his Ford car a plug which he laid on the walk between the Standard rig engine-house and the (390) derrick. I later picked up and carefully examined this plug. The annexed drawing illus-

(Testimony of Cyrus Bell)

brates this plug, which was provided with the leather cup, body, slips, point or guide, and rubber sleeve packing, as referred to on the accompanying drawing. I am familiar with the contention made by defendant in this case, that this plug may be relied upon entirely to hold the cement in position without any fluid pressure being maintained above the plug. I have been for many years familiar with heaving plugs and various other kinds of plugs and devices employed in oil field work, which embody slips to engage casing and pack-off fluid or formation pressure. From my experience with such devices, and my knowledge of oil field tools and practices, and my examination of the plug employed by defendant Owen, I am firmly of the opinion that the defendant Owen's plug cannot be relied upon to maintain the cement in position until the same hardens unless fluid pressure be maintained above the plug.

While waiting for the crew to complete inserting the well casing, I was introduced to and talked to Earl Swartz, the superintendent in charge of the well. He stated that he was familiar with the plug employed by the defendant Owen, and that he did not believe it good policy to relieve the pressure above the plug, for the reason that the plug might back up in the casing. He also stated that there was a shoe guide on the bottom of the casing to stop the plug.

(391) The circulating head to be employed for the cementing job was furnished by the defendant Owen, and was of a special quick-detachable type, enabling it to be quickly applied to and removed from the top of the casing. After the well-crew had completed inserting the casing, this circulating head was positioned on top of the

(Testimony of Cyrus Bell)

casing. The circulating head was provided with two connections, each of which had valves or stopcocks. A hose leading from a mud-pump was connected to one branch of the circulating head, and mud was pumped down the well casing and up the outside to establish circulation. After circulation had been established, a hose leading from the cement outfit of the defendant, J. M. Owen, was connected to the other branch of the circulating head. The desired quantity of cement was then pumped from the outfit through the hose and circulating head into the casing. Thereupon the circulating head was removed from the top of the casing, and the plug which has been above described, and which is illustrated in the accompanying drawing, was inserted into the casing on top of the cement. Two empty, folded cement sacks were placed on top of the plug in the casing. The circulating head was then re-positioned on the casing. A very small quantity of fluid cement (I estimate approximately 10 gallons) was then pumped into the casing on top of the plug. The stop-cock in the branch of the circulating head to which the hose from the cement unit was (393) connected was thereupon closed, and the stopcock in the other branch of the circulating head opened and the mud pump operated. The hose leading to the cement unit was immediately disconnected from the cement unit and connected to the manifold of the mud pumps, and the stopcock on the branch of the circulating head to which the hose was connected opened. The cement was forced down the well casing by the action of both mud pumps leading through the hoses to the branches of the circulating head. It was 6:48 p.m. when the mud pumps were started to

(Testimony of Cyrus Bell)

force the cement down the casing, and this pumping was continued until 7:14 P.M., when the pumps automatically shut down by the arresting of the plug in the shoe-guide at the lower end of the casing. At the time the pumps were thus automatically shut down, one of the crew was standing on the stabbing-board or plank placed up in the derrick at the level of the circulating head. This man had a wrench in his hand, and at the last stroke of the pump he closed both stop-cocks on the circulating head, thereby sealing off the head and maintaining the pressure in the casing. The hoses leading to the circulating head were then disconnected from both branches and from the pumps. The defendant J. M. Owen and the man driving his truck gathered together the equipment belonging to the cementing outfit and left the well. They did not take with them their circulating head. This head was not removed from (393) the casing, nor were the stopcocks on the head opened at any time prior to my leaving the well. I remained at the well until 7:48 P.M., to observe whether the circulating head was removed from the casing or the pressure on the casing relieved. About the time of the completion of the cementing operation, A. R. Johnson, one of the owners of Federal Drilling Company, who has made an affidavit in this case, arrived at the well, and I talked with him for some time, and during such conversation the circulating head remained in position on the casing, with its stopcocks closed to maintain the excess pressure on the casing.

I returned to the well at approximately 6:20 a.m. the next morning, July 20, 1923, to see if the circulating head was still in position on the casing, and found that it had not been removed.

(Testimony of Cyrus Bell)

I have, of course, long experience with the Perkins & Double method and its manner of operation and results attained by it. The method employed by the defendant Owen in cementing the above well is, in my opinion, substantially identical with the Perkins & Double method, and is also substantially identical with the method employed by the defendants Wigle and Cottengim in the case above mentioned. The method so employed by the defendant Owen included forcing the cement down through the regular well casing by means of water pressure; included separating the cement by a barrier from the fluid being employed to force the (394) cement down the casing, and included holding the cement in position under fluid pressure until the cement hardened. A chemical was added to the cement to cause it to set or harden very rapidly, and during such setting and hardening a fluid pressure was maintained in the casing above the cement, which was in excess of fourteen hundred (1400) pounds, due to the weight of approximately 3300 feet of fluid, and there was also the excess pressure on the fluid which was produced by the pumps, and which was sealed in the casing by the closing of the stopcocks on the circulating head.

CYRUS BELL.

Subscribed and sworn to before me this 20th day of July, 1923. Meyer Weisman, Notary Public in and for the County of Los Angeles, State of California.

(Testimony of Cyrus Bell)

AFFIDVAIT OF CYRUS BELL

(REBUTTAL)

State of California,)
County of Los Angeles.)ss.

Cyrus Bell, being first duly sworn, on oath deposes and says:

I am the Cyrus Bell who testified in the case of the above plaintiff versus Wilson B. Wigle et al, F-70, and who has given a former affidavit in this case. I was present (395) at the cementing of Well #15 of U. S. Royalties Company, Torrance Field, California, on Sunday morning, November 4, 1923. I have read the affidavits of Webb Andrews and Floyd Ross in this case, describing how the aforesaid cementing job was performed, and what there occurred, and know the same to be as there stated. I therefore adopt said affidavits for my own without repeating the same and swear of my own knowledge that the same are true and correct.

CYRUS BELL.

Subscribed and sworn to before me this 14th day of November, 1923. L. Belle Weaver, Notary Public in and for the County of Los Angeles, State of California.

Q BY MR. L. S. LYON: Mr. Bell, you stated this noon that you would like to state to the Court or give to the Court some information as to whether the Standard Oil Company officials, who had authority over you, were advised of your interest in the Perkins Oil Well Cementing Company at the time you took the interest. Will you please make such statement as you care to on that matter?

(Testimony of Cyrus Bell)

A During my testimony in the Wigle case the Court asked the question, and I thought it might be possible that your Honor would like to know if the officials who were over me in the Standard Oil Company knew of my owning this (396) interest in the Perkins Cementing Company. I will explain how and where I told them. Mr. F. H. Hillman, who just retired from active service with the Standard Oil Company, who was with them about forty-eight years, came from Ohio, I think it was, to California, to take charge of the producing end of the Standard's business here. This was on his second trip, as I remember, and down in the Midway district. He and Mr. J. M. Atwell and J. R. McAllister got into Bakersfield and telephoned back out and asked me to come in that evening and meet them at the Southern Hotel. I went into the hotel as they requested, and they offered me the job as superintendent of the Midway division that night, which I accepted. During our conversation on different things, the matter of cementing came up, and Mr. McAllister and I never agreed very well on cementing, but Mr. Hillman asked me what I thought was the best cement system. I told him the Perkins system, but that I wasn't in a position to say very much about it, as I had acquired an interest in the Perkins Cementing Company. That conversation was in 1911.

(Testimony of Lewis J. Whitney)

(397) TESTIMONY OF LEWIS J. WHITNEY,
FOR PLAINTIFF,

LEWIS J. WHITNEY,

called as a witness on behalf of Plaintiff, duly sworn,
testifies:

My name is Lewis J. Whitney. My residence is Los Angeles. I am assistant to the president of the Perkins Oil Well Cementing Company, and in charge of their main office. I have supervision of the books and records of that company, and have custody of the same.

The tabulation which you now show me is a statement taken from original records which we have in the office, showing the number of wells cemented by the Perkins process since the beginning of its use in March, 1910, up to and including April of this year, in the State of California; also the use of the Perkins process by our subsidiary, the Perkins Oil Well Cementing Company of Wyoming, which operates in the Rocky Mountains district, (398) comprising chiefly the States of Wyoming and Colorado; also a statement showing the use by the Mid-West Refining Company, where the operation is conducted by electric equipment, in the Rocky Mountain district, wherein they are using our system under license; also the number of wells cemented on which royalty has been paid to us by the Halliburton Oil Well Cementing Company for cementing in the Mid-Continent fields, covering the States of Louisiana, Arkansas, Oklahoma, Texas and Kansas; and also a statement showing the numbers of wells on which royalty has been paid to this company for the use by licensed operators in Louisiana

(Testimony of Lewis J. Whitney)

and Arkansas. As to the remainder of this schedule, the items contained therein and the headings are correct.

MR. WESTALL: My idea is, your Honor, that a large amount of this is irrelevant and immaterial. This is a charge of infringement in this locality, and it seems to me that the operations of the plaintiff company throughout the United States are not material . . . It seems to me to show the amount of wells cemented in this jurisdiction or in the State of California would be all that would be required.

MR. L. S. LYON: It is quite customary in patent cases to receive a statement of this kind.

MR. WESTALL: I don't think it is, your Honor.

MR. L. S. LYON: We have gotten it up as briefly as we can and condensed it. I think the fact that royalties are being paid right in Louisiana and Arkansas and the patent recognized there has some weight, in addition to the weight as to the utility and value of the patent; that it has some weight on the proposition as to the claim of anticipation down there.

MR. WESTALL: I contend that it has no bearing at all. If it was a matter of acquiescence in the validity of the patent, it would be pertinent on a motion for preliminary injunction; but these contracts and recognition of the patent, so-called, are not pertinent on the final trial of the case on any issue that I can see. We don't know the circumstances of all of those contracts or for what reason they were entered into, or the considerations that were paid, and those things. It seems to me to show the amount of wells cemented in this jurisdiction or in the State of California would be all that would be required.

(Testimony of Lewis J. Whitney)

THE COURT: I think there is some force in that, Mr. Lyon, and the vehicle of proof, too, is not the proper one.

MR. WESTALL: They have not offered—

MR. L. S. LYON: I don't quite understand your Honor's last remark.

THE COURT: The method of proof or the vehicle by which these facts are sought to be established, I mean.

MR. L. S. LYON: Of course, I can prove the records are too voluminous to bring in here. Mr. Westall and I have been over that.

THE COURT: I am not speaking entirely of that matter. That is a valid objection, however, to the offer. The principal, and I think the substantial, objection is the one that concerns areas outside of the Court's jurisdiction.

MR. L. S. LYON: If your Honor please, our Court of Appeals has even had occasion, and the Supreme Court, to refer to the use of a patented process outside of the United States. In the Minerals Separation case the Supreme Court, in holding the patent valid, very largely because of the big success of the process, commented on the fact that it was not only in general use in the United States, but even in foreign countries, and naming a good many of them in the opinion of the Supreme Court.

THE COURT: You have that in the record already. I think there is no doubt about that. But I am speaking now as to this concrete offer. I am not speaking as to anything except the matter before the Court, to wit, this tabulation of what purports to be the relations on the part of the plaintiff with certain other persons. This

(Testimony of Lewis J. Whitney)

has no legal efficacy, at all. It doesn't come with the sanction of an oath. It concerns a tabulation of alleged activities outside of the jurisdiction of the Court, and in that respect it is cumulative on the feature that you now suggest. The record is already made up as to the utility of this Perkins system so-called. There has been quite an amount of evidence that this so-called Perkins system has been generally used by the industry, and that is the extent I think, of those decisions to which you advert, that that is the principle. I think you have a right to show what they have done here in the jurisdiction of this Court.

MR. L. S. LYON: If your Honor please, of course a patent is not a District matter, by any means. A Federal Court is just as much interested, theoretically, as far as a patent is concerned, as to its effect in one part of the United States as in another, and any decree of this Court would be binding on the parties wherever they operated.

THE COURT: There is no use of discussing it any further.

MR. L. S. LYON: I would like to make the offer for the purpose of the record, and perhaps, if the objection is to be sustained, I should amplify my proof a little.

Q. Will you explain these schedules, in so far as the names of these companies appear here? What do they refer to, those names?

THE COURT: Where are you referring to now, Mr. Lyon?

MR. L. S. LYON: To page 1, for example, which is in the middle of the document, "Statement of Wells Cemented During the Year 1926," showing for whom the

(Testimony of Lewis J. Whitney)

cementing was performed, and the number of cementing jobs for each.

Q How do you obtain those names? From your records? Or how do you get those names in your records?

A Those records were taken from our accounts receivable ledger, and the number opposite each name represents the number of cementing jobs performed by us for that company during the year 1926.

Q I might shorten it in this way: Do you not receive in your office an original well report directly from the field, an individual report, for the job, that is made up on the job and sent to you in the usual course of business for each well that is cemented under this process, whether it is cemented by your company or by the Halliburton Company or by the Wyoming Company? The service is the same, is it not?

A The service is the same. And in addition to the well report we also have a slip which contains essentially the same information that is on our blank, and it is signed by a representative of the well owner or the well driller. And we tabulate the royalties that are paid to the company on the basis of those records. (403) Those are the original records that we used in our business.

MR. L. S. LYON: In other words, your Honor, if I may explain that, whenever a cementing job is performed the man who performs it has a form of report that he sends to the main office, and that practice is not only followed in regard to the work in California but in regard to the work everywhere. The original job report coming from the man who does the work goes right to this office, and they make their calculations.

(Testimony of Lewis J. Whitney)

THE WITNESS: We make our bills on those reports. Those are what I have employed in making up this tabulation. They were taken from the original source. All of the California companies for which we did cementing during the year 1926 are tabulated here.

MR. L. S. LYON: We will offer the exhibit, subject to the ruling of the Court.

MR. WESTALL: It is objected to on the ground it is not the best evidence, and is incompetent, irrelevant, and (404) immaterial, and particularly in relating to matters outside of the State of California and outside of the jurisdiction of the Court.

MR. L. S. LYON: In view of the objection I will first ask if it is not a fact that the original records from which this tabulation is made up are so voluminous that it would be entirely impractical to bring them here to court or to ask the court to examine them to arrive at these tabulations.

A They are. They comprise anywhere from six to eight hundred individual transactions each month. This is the tabulation that I have made and that I know to be correct.

(Stipulated that the original documents are not in court.)

(Objection sustained and an exception noted by plaintiff.)

(Document marked Plaintiff's Exhibit 13 for Identification.)

(405) THE WITNESS: I can state of my own knowledge, as refreshed by my recollection, made up from this memorandum, employing this tabulation as a memo-

(Testimony of Lewis J. Whitney)

random, that the facts set forth in this memorandum as to the business since 1923, the first of January, 1923, are correctly set forth here. I made the tabulation up of the same kind which was received by Judge Trippet in the Wigle case.

ON

CROSS EXAMINATION

Mr. Whitney testifies:

Referring to the first page of the report here, where it says "January, 1927, 206 wells," that means that there were 206 cementing jobs in the State of California in January, 1927. There might have been more than one on one well during that month. In February, where it says 186 were cemented, that would cover the territory in the vicinity of Taft, Bakersfield, Ventura, Richfield, the Whittier fields, Long Beach, Huntington Beach and Torrance. It covers Taft and Bakersfield on the other side of the Tehachapi Mountains. Ventura would possibly come in that classification. We maintain cementing outfits at all of those points. It would cover fields practically all south of the Coalinga field. It is my recollection at the present time that we have cemented no wells north of that point this year. I am quite positive it is all south of the Merced County line. (409) To my personal knowledge, our cementing outfits, that is, of the Perkins Oil Well Cementing Company, haven't been outside of the State of California except on one occasion in the last four years, and that was one well at Holbrook, Arizona, which is included in that tabulation. There are 207 wells that were cemented in March, 1927, and 227 in April, 1927.

(Testimony of Lewis J. Whitney)

Q Do you know of your own knowledge, Mr. Whitney, how many wells your competitors in the State of California have cemented by other methods than the Perkins method?

MR. L. S. LYON: We object to that as not cross-examination.

THE COURT: Sustained.

MR. L. S. LYON: We reoffer the exhibit, in view of the cross-examination, if your Honor please.

MR. WESTALL: There is no objection to the first page, showing the wells in California and this vicinity.

MR. L. S. LYON: The whole document was offered, and he cross-examined on the document.

THE COURT: The objection is sustained to the offer.

MR. L. S. LYON: We will offer the document page by page, in view of the cross-examination. We will offer the first page, which gives a grand total of 34,499 wells. We will offer that page first, that individual page.

MR. WESTALL: That is objected to on the ground that it goes outside of the State of California.

THE COURT: These pages on the document which were handed me by counsel are not numbered at all.

MR. L. S. LYON: I am referring to the page entitled, "Perkins Oil Well Cementing Company, Summary of Cementing Jobs Performed by Authorized Use of the Perkins Process from March 1910, to April, 1927, Incl."

THE COURT: The objection is sustained.

MR. L. S. LYON: An exception. I offer the next page, entitled, "Perkins Oil Well Cementing Company, Statement of Wells Cemented from March, 1910, to April 30, 1927."

(Testimony of Lewis J. Whitney)

MR. WESTALL: The only objection to that is that it is not the best evidence.

THE COURT: Overruled. You cross-examined on that.

(Page marked Plaintiff's Exhibit 13-A.)

MR. L. S. LYON: I take it it can be considered that we have offered individually each of the other pages down to that one which is marked 1 at the bottom, and has in red ink at the top "Perkins Oil Well Cementing Company." Those each refer to outside-of-the-district operations, and I take it that they can (411) each be considered offered separately, and objected to, and the objections sustained, and an exception taken in each case, for like reasons as the last ruling.

THE COURT: There is one exception to that. That has not been offered seriatim. There is a portion of the document on what would be, if these pages were numbered, page 7 of this document handed the Court, down to the words "Mid-Continent Field."

MR. L. S. LYON: Yes. That is a statement of the use by the large oil companies in California fields. We will offer that separately.

THE COURT: This paper I have here is headed "Perkins Oil Well Cementing Company, Statement showing the Use by the Large Oil Companies of Oil Well Cementing Performed With Authorized Use of the Perkins Process During the Year 1926." Then follows, "California Fields," and the tabulation on that.

MR. L. S. LYON: Yes, we offer the tabulation under "California Fields." That much of the page we offer individually.

(Testimony of Lewis J. Whitney)

THE COURT: It will be received.

(Plaintiff's Exhibit 13-B.)

MR. L. S. LYON: We offer the next tabulation, beginning with page at which there is on the top in red ink "Perkins Oil Well Cementing Company." We offer those four pages as a tabulation of California Cementing Operations only. (412) That is the next series, that is numbered 1, following the one we are just considering. It starts out, "Statement of Wells Cemented During the Year 1926, Showing For Whom Cementing Was Performed and Number of Cementing Jobs for Each."

THE WITNESS: The last specified tabulation refers only to operations in California, and particularly in the Southern District of California.

MR. WESTALL: May it be understood that the same objection is repeated?

THE COURT: Yes, and the same ruling, for the same reason (413) previously announced.

(Four pages referred to received as Plaintiff's Exhibit 13-C.)

MR. L. S. LYON: May the record show we separately offer the next tabulation, consisting of 10 pages, which relates to the work by the Halliburton Company in the Mid-Continent oil fields?

MR. WESTALL: The same objection.

THE COURT: The objection is sustained.

MR. L. S. LYON: And an exception is noted.

(Pages marked Plaintiff's Exhibit 13-D for Identification, consisting of 10 pages, commencing with page entitled "Perkins Oil Well Cementing Company, Statement Showing Wells Cemented during 1926 by Halliburton.")

(Testimony of Webb A. Andrews)

(415) (It was stipulated that the affidavit of Webb A. Andrews in the printed transcript, page 205, in the Court of Appeals of this case, and the affidavit of Floyd L. Ross, at page 207, may be copied into the record, and that cross-examination of the witnesses is waived. Said affidavits are as follows:)

(416) AFFIDAVIT OF WEBB A. ANDREWS
(REBUTTAL).

State of California,)
) ss.
County of Los Angeles.)

Webb A. Andrews, being first duly sworn, on oath deposes and says:

I was employed as driller on well #15 of U. S. Royalties, Hub lease, Torrance Field, California, on the morning tower (12 a. m. to 8 a. m.) Sunday, November 4, 1923. This well #15 was cemented by Owen Oil Well Cementing Company between 4 and 5 o'clock in the morning of said day at a depth of 845 feet. During the cementing of the well I was serving as driller and observed the following operations:

Circulation was first established by pumping mud water down the well casing, which casing was Hercules 16 inch. Fluid cement (100 sacks) was then pumped into the casing. A plug was then put into the casing on top of the cement. This plug fitted the inside of the casing so closely that it was necessary to drive the plug into the top of the casing. The plug carried three metal dogs or slips positioned so as to wedge between the plug

(Testimony of Webb A. Andrews)

and casing if the plug moved upward in the casing. Several folded empty cement sacks were (417) then placed in the casing on top of the plug. A small quantity of fluid cement was then pumped into the casing and this followed by the pumping into the casing of mud water. The pumping of mud water was continued until the plug struck a shoe guide at the bottom of the casing as indicated by the stalling of the pump.

When the pump was stalled as aforesaid, the man in charge of the cementing operation for Owen Oil Well Cementing Company was standing near the pump. I am informed that the name of this man is John Crouth. The stopcocks on the circulating head were closed and the hoses leading from the circulating head to the cement pump and mud pump were then disconnected. By this time Crouth had left the derrick floor and was engaged at the cement truck standing by. The cement line stopcock on the circulating head was then opened and mud water immediately flowed therefrom, showing that a back pressure existed. This stopcock was then closed by Floyd L. Ross and Crouth was called into the derrick. The same stopcock was then opened in Crouth's presence, and the back flow observed by him. Crouth then said to me, "Close the stopcock." Crouth watched while I closed the stopcock and after talking with Ross and Bell, Crouth left the well.

The circulating head was left on the casing with the stopcock closed. So far as preventing a back flow, the plug used as aforesaid performed no useful function.

(418)

WEBB A. ANDREWS.

(Testimony of Floyd L. Ross)

Subscribed and sworn to before me this 14th day of November, 1923. L. Belle Weaver (Seal) Notary Public in and for the County of Los Angeles, State of California.

AFFIDAVIT OF FLOYD L. ROSS

(REBUTTAL).

State of California,)
) ss.
County of Los Angeles.)

Floyd L. Ross, being first duly sworn, on oath deposes and says:

I was present at the cementing of well #15, Hubb lease, Torrance Field, California, U. S. Royalties Company, by defendant J. M. Owen (Owen Oil Well Cementing Company) on Sunday morning, November 4, 1923. I was employed as the tool pusher (drilling foreman) on this well. Cyrus Bell was present while the well was being cemented. Webb Andrews was driller on the well. I am informed that John Crouth is the name of the man who directed the cementing job for defendant Owen Oil Well Cementing Company.

I have read the affidavit of Webb Andrews in this case describing the aforesaid cementing job. I observed the operations described by Andrews in his affidavit and know the same to be as there stated. Immediately after the pumping of mud water had been terminated by the plug shutting (419) down the pump, a discharge valve or bleeder on the mud pump was opened and no back

(Testimony of Floyd L. Ross)

pressure found. The mud line stopcock on the circulating head was then closed. Crouth then filled in a report form of defendant with the number of the well and other details, and wrote on the back of the report, "Head removed immediately," or words to that effect, and asked Bell and me to sign the same, which we did. At that time the circulating head remained positioned on the casing with the stop-cocks closed. Crouth then left the derrick and went to the cement truck nearby. I then opened the cement line stopcock on the circulating head and mud water instantly flowed out in quantity under considerable back pressure. I then closed the stopcock and Bell asked Andrews to "have the cement man come back." Crouth returned to the derrick floor and the stopcock on the cement line of the circulating head was again opened. Crouth saw the mud water flow out under considerable back pressure and said to Andrews, "Close the stopcock," which Andrews did. Bell then asked Crouth what should be done and Crouth said, "Leave it closed." Crouth then took out the report form above mentioned and scratched out the words, "Head removed immediately", and wrote below Bell's and my signatures, "Head left on—back pressure," or similar words. Crouth then left the well. The head then remained on the casing with stopcocks closed for over 24 hours while the cement set.

The plug employed in cementing the aforesaid well (420) performed no useful function so far as preventing a back flow. Irrespective of the existence of said back flow and assuming there had been none, no benefit of any character would have resulted if the circulating head

(Testimony of J. M. Owen)

could have been removed during the more than 24 hours the well was standing with the head on as aforesaid.

It would not have been of any benefit whatever to have been able to remove the circulating head during the time the well stood with the head on as aforesaid.

FLOYD L. ROSS.

Subscribed and sworn to before me this 14th day of november, 1923. L. Belle Weaver (Seal). Notary Public in and for the County of Los Angeles, State of California.

(421) TESTIMONY OF J. M. OWEN For Plaintiff, under Section 2055 C. C. P.

J. M. OWNE,

a defendant, called as a witness on behalf of the Plaintiff, under Section 2055 C. C. P., duly sworn, testifies:

I am one of the defendants in this case. I have been in the oil well cementing business since the first of January, 1923, in my own behalf. I appeared and testified in the case of this plaintiff against Wigle and Cottengim before Judge Trippet. Prior to going into business on my own behalf in 1923 I was not employed by the Halliburton Oil Well Cementing Company in Oklahoma. (422) I was not employed by Halliburton at all. I didn't know him.

Prior to the trial of the Wigle case I employed a plug in the cementing that I did during the first four months of 1923. I did that work in Long Beach and Santa Fe Springs, and Huntington Beach. I was in business there cementing wells. The method I used at that time was

(Testimony of J. M. Owen)

the same thing as the one which Wigle was using. It included establishing circulation, pumping the cement down the regular well casing, employing a plug on top of the cement, and using a drilling mud to pump the plug down, with some cement on top of the plug, and landing the plug automatically near the bottom of the casing, and thereupon discontinuing the pumping and maintaining the fluid in the casing while the cement set.

(423) That plug did not have any dogs or features on it to prevent it from coming back.

I first learned of the Perkins patent sometime about March, 1923. I did not continue using the method that has just been described, after learning of the Perkins patent. That is when I got the Inskip plug, as soon as I found out that—I found out about the Perkins patent from Wigle sometime along about March—February or March. Wigle came and told me about it; he wanted me for a witness. I don't believe I was using the Inskip plug at the time I testified before Judge Trippet. I was using Wigle's plug then. (424) at that time. I learned about the Perkins patent just before I testified before Judge Trippet. I don't remember how long before, but it wasn't long before. I did use the Wigle plug after learning about the Perkins patent.

Q Do you contend at this time that your use of the Wigle plug was not an infringement of the Perkins patent?

MR. WESTALL: We object to that as incompetent, irrelevant, and immaterial, and calling for a conclusion on the part of the witness as to what constitutes an infringement.

(Testimony of J. M. Owen)

THE COURT: Overruled. He is one of the defendants here who is charged with infringing, and as to his knowledge concerning the matter he may be examined.

MR. WESTALL: As his attorney, I can answer the question for him, as to what we contend.

MR. L. S. LYON: We don't care to have your answer.

MR. WESTALL: I know what our contention is and what the pleadings show.

THE COURT: No, I will allow him to answer.

(425) MR. WESTALL: Note an exception.

THE WITNESS: Well, I don't know as it was. I contend now that it was not.

Q BY MR. L. S. LYON: Why not?

MR. WESTALL: If the Court please, we again object. The witness is asked to give an opinion as an attorney, as to why a certain thing is an infringement. Infringement is a matter of law for a court, and what his opinion is as a layman, as to whether or not it was an infringement, could not possibly bind him.

THE COURT: I think infringement is a matter of fact also as well as of law.

MR. WESTALL: He might think he infringed, and might have a totally erroneous impression.

THE COURT: But let's find out what he thinks, under oath. That is what we want to know. Overruled.

MR. WESTALL: An exception.

(426) THE WITNESS: Well, I was only using one plug, and I was not using it on top of the cement, I was using it on top of all the cement that was pushed

(Testimony of J. M. Owen)

out of the casing or pump out of the casing. That is the reason I contend my use of the Wigle plug was not an infringement. I just used it as an indicator, not to separate anything. I used the plug to stop the pump and to indicate when the cement was all outside of the pipe.

Q How did it do that?

A Well, it couldn't get out of the pipe. The pipe was reduced at the bottom, and when you filled the pipe full you couldn't pump by it, because it was as big as the pipe inside. It fit in the casing all the way down. (427) I kept the fluid in the casing on top of that plug while the cement was setting in those operations. I never had anything to do with the fluid. I used a circulating head and left it on the well with my use of the Wigle plug. I closed the valves in all cases.

Q After the preliminary injunction was issued against you in this case, did you discontinue the use of the Wigle plug?

MR. WESTALL: Now, if the Court please, we object to that. The bill charges infringement prior to its filing, and what was done since that time it seems to me is immaterial, except possibly on the accounting later on.

THE COURT: I think so, Mr. Lyon. (428) I do not think it is material. If he has committed contempt, he should be cited for it.

THE WITNESS: Referring to Plaintiff's Exhibit 6, that plug is the way I make them; it looks like one of them. I don't know when I started using a plug like that, but it seems to me in March or April, 1923. I used that plug up until the time the decision was rendered in the contempt proceedings in this case.

(Testimony of J. M. Owen)

In using this plug, such as Exhibit 6, the top gasket or washer fits the casing. The plug is put in on top of all of the cement that is to be expelled from the casing. (429) Before putting the cement into the top of the casing we establish circulation. In using this plug we sometimes put sacks, empty cement sacks, on top of the plug, to keep the fluid back from passing the plug as we are going down. We pump or shove the plug down and the cement ahead of it by pumping fluid in on top of it. That is the regular drilling mud that happens to be used in the derrick or on the well that we are cementing; it is mud made up of water and earth.

Q And you use some form of obstruction at the lower end of the casing to stop this plug from going out of the casing?

(430) A Well, there is a guide always put on the casing. The oil companies always put a guide on the bottom of the pipe when they start to cement. They have to. That guide at the bottom of the casing stops this plug automatically in the bottom of the casing. When the plug stops the pumping is discontinued at the top of the well.

Q I am talking about your standard practice now when you use this plug. And after discontinuing the pumping you retain the fluid in the casing above the plug while the cement is setting, do you not?

A I never have anything to do with the fluid in the casing. The fluid is there when I go there. It is always in there from the time you start your hole. It remains there while the cement is setting. You couldn't take it out because it would ruin your well. You couldn't bail

(Testimony of J. M. Owen)

that mud out of the well at no time after you start your hole. (431) It is the practice of taking the circulating head off of the well every time when we use this plug. There has been a few occasions that it has not been. A lot of times I cement them through the oil company's circulating heads, and when I do I leave them on. Once in a while we strike a company that has got circulating heads of their own.

I am using this plug we have just been talking about under license issued under this Inskeep patent 1,443,474 granted January 30, 1923. Mr. Inskeep is the man that got that patent. I think he is down in Texas or Oklahoma at this time.

(432) (Inskeep patent No. 1,443,474 received in evidence as Plaintiff's Exhibit 14.)

Q Mr. Owen, since you testified in the Wigle case, the Perkins Company has introduced in this field an automatic cement mixer for cementing oil wells, in which the cement is mixed by a jet of water, and upon that being introduced in this field by the Perkins Company you adopted an automatic water jet mixer, and suit has been brought against you in this Court, and you are now under injunction because of that use, are you not?

MR. WESTALL: We object to that as totally irrelevant to this case.

MR. L. S. LYON: It is on the question of intent to infringe. If we can show a persistent practice of infringing, the Court is certainly going to do something by way of treble damages.

(433) THE COURT: That would be more on the matter of accounting. (433) We must determine the

(Testimony of J. M. Owen)

issues first, and then if the reference comes, if that is a matter to be explored, we can take it up on the hearing. Objection sustained for the reasons stated.

ON

CROSS EXAMINATION

Mr. Owen testifies:

In the cases to which I referred in which the head was left on the well, pressure is not maintained on the head; the stopcocks are left open. Leaving the head on the well does not close off the top of the well, in that the pressure is released. That is true in all cases.

(434) I have stated that in the use of the Inskeep plug and the Wigle plug we always put cement on top of the plug. You have to leave some cement in the pipe. You have either got to use a long spacer, 2 by 4, or 4 by 4, 18 or 20 feet long, ahead of your plug. I put it on top of the plug. It has got to be left in there so that you can bail down and get a casing leak. If you pumped it all out, if you had a hole in your casing, you could not find it. The practice is always to bail that fluid down before you take that cement out, to see if you have got any leaks in your casing. If you pumped it all out you couldn't do that. I always put it on top and pump the plug right to the bottom. If the shoe or the guide broke when we were pumping cement down, the plug would go out. I have had that happen. In that case it would not perform any function. (435) It would not act as an indicator. It would not hold the cement outside of the casing.

I never have used anything but mud on top of the plug. You can't use water on top of the plug.

(Testimony of J. M. Owen)

MR. L. S. LYON: Objected to as not proper cross-examination; I mean it is not germane to the cross-examination, why he did not use something else.

THE COURT: Overruled.

THE WITNESS: You can't use water, it is too light. You can't use water; it is too light. The mud is so much heavier. Water is not near as heavy (436) as mud, and if you were to pump your cement in the hole and put your plug in there on top of it and go to pumping clear water in there, you never could pump it to the bottom. It hasn't the weight. The weight is so great on the outside of the pipe and the water is so light putting it on the inside of the pipe, you couldn't do it. If you persisted in doing it you would bust your pipe because it couldn't stand the pressure. Or we haven't pumps sufficient to do it anyway on these deep holes. We haven't got the equipment to do it with, that the pipes would stand it. The holes are too deep.

ON

REDIRECT EXAMINATION

Mr. Owen testifies:

If it is a shallow well you can use what we call water as distinguished from mud. I would say that you could pump it down 2500 feet with water, (437) but I don't believe you can go any deeper. At 3000 feet you would have to use mud. It would have to be mud. I don't know how thick you suppose you want it, but it would have to be mud. I couldn't say as to how *think* it would have to be at 3000 feet if you can use clear water at 2500 feet. Just drilling mud, just what we use in the well, you pump it down with that. The mud could be

(Testimony of Paul Paine)

thinner than the ordinary drilling mud at 3000 feet and still function all right. You would have to have pretty heavy mud at 4000 feet. I don't know how to answer how heavy. We use the mud that is being used in drilling the well because it is the most available, convenient fluid.

Q That is just the reason why you take that particular mud, isn't it?

A Oh, you have generally got heavy mud to follow your cement with; in setting your casing in the hole you push (438) the heavy mud off the walls, and that comes out and goes in the suction box to follow your cement up with. It is the earth that makes the mud heavier than the water; it is the shale. It is the shale they strike in making the hole. The difference between the mud and the water, as I distinguish the two, is the mud has all the water, but has added to it some earth to make it heavier. It is the water in the mud that allows it to be pumped into the well to apply pressure to the plug and force the cement down the casing. You couldn't have mud without water.

TESTIMONY OF

PAUL PAINE,

FOR PLAINTIFF (Resumed).

PAUL PAINE

recalled on behalf of the Plaintiff, previously sworn, testifies:

Q I think we have already offered your affidavit in regard to this plug Exhibit 6, but I wish you would take

(Testimony of Paul Paine)

this plug now and compare its operation in cementing a well with the manner in which the defendant Owen has just described he uses this plug, with the performance of the plug in the Perkins system.

A Well, the top part of this plug, if it goes, as it presumably does, into a pipe where the leather cup occupies the full inside space of the casing, would act as a barrier between the fluid below it and the fluid above it.

Q And how would it compare in its function on reaching the lower end of the casing?

A It would behave comparably to the behavior of the top plug in the Perkins method in that it hits the obstruction at the bottom of the well, and since the plug can go no farther it prevents any farther passage of the fluid that is being pumped down inside the casing, and therefore, since the fluid is incompressible, it stops the pump at the surface, and we know then that the cement which was below this plug going (440) down the hole is all outside of the casing. In ordinary language I would say that this plug, either the Perkins or the defendants', Exhibit 6, acts as a valve element in the process. Either one serves to close off the passage of the fluid and makes it function then, or perform, as a valve. In addition to stopping the pump, this valve element prevents the fluid in the casing from getting out of the casing and mixing with the cement while the cement is setting. The fluid that is in the casing remains there in that position until the cement has set, and is kept separated from the cement by the valve. I think the device Exhibit 6 would perform just the same way as the Perkins plug in case of a split casing. I see no reason why it wouldn't; that is, when this plug has

(Testimony of Paul Paine)

passed the point where the casing is split, it would go no farther, because the fluid would then pass through the opening in the casing to the outside of the hole and up to the top of the hole on the outside of the casing.

(441) One purpose of leaving cement in the bottom of the casing by using a spacer with the Perkins plug is to provide some assurance that cement is right around the bottom of the casing. Cement in advance of the plug is around the bottom of the casing. Cement on top of the plug would not serve that purpose at all. As I have previously said, the reason for that cement being left in the casing below the plug with the Perkins process is to serve beneficial use in testing the shut-off, because if the test is made and water is found not to be shut off, by having some cement inside of the casing one can ascertain whether the leak comes from—whether the water is coming in through a leak in the casing, or is coming in around the casing shoe. The cement must be below the plug in that feature.

Q As regards the casing test?

A No, I think not. It has been my custom to run a spacer below the top plug so that the cement is up inside (442) the casing at the bottom. I think the putting of the cement on top of the plug as compared with stopping the plug at a point above the bottom of the casing does not furnish any useful function at all. Of course, it is difficult to ascertain what is happening at the bottom of the well. I cannot perceive from an engineering, technical standpoint any advantage to it, because I would expect any reasonable quantity of cement would be vitiated by mixture with the mud that is pumping it down; that is,

(Testimony of Paul Paine)

the cement which is above the plug, and which is not separated from the mud by the barrier. I think for all practical purposes the top plug of the Perkins process and the defendant's plug Exhibit 6 are identical in the functions that they serve.

ON

CROSS EXAMINATION

Mr. Paine testifies:

(449) Q Is there any advantage in using barriers between the cement and either the fluid below the cement or above the cement?

MR. L. S. LYON: If your Honor please, we object to that as unintelligible, if it relates to the use of the barrier in the Perkins process.

THE COURT: Objection overruled.

(450) THE WITNESS: Yes. I count the greater advantage to be that of using the barrier at the top of the cement, between the top of the column of cement and the mud which is pumping the cement in, because there is bound to be a lag of the cement going down in the pipe. The behavior of the fluid in the pipe is in every way comparable to the flow of water in a stream; it flows fastest in the center. Observe an irrigation ditch and you will see that the fluid is going the fastest in the center and lags on the sides. Now, the column of cement is going to stick a little bit to the sides of the pipe, and the cement in the center is going to go ahead faster, going to travel faster, and thereby the mud above it in the center of the pipe is going to follow down on top of the cement and become mixed with it, which is a perfectly well known law of the flow of fluids, that that happens.

(Testimony of Paul Paine)

Q Well, you know perfectly well, don't you, Mr. Paine, that at the present time they are using a method of cementing through casing where no plugs or no barriers whatever are used to separate any cement from any fluid, and that that method is used perhaps to the same extent as the so-called Perkins method with barriers, and it is highly successful?

MR. L. S. LYON: We object to that as not cross-examination.

THE COURT: That is the same question; sustained.

MR. L. S. LYON: And also on the ground that the defendant is estopped. (451)

MR. WESTALL: On the ground it is not cross-examination?

THE COURT: Yes.

MR. WESTALL: I have assumed that the witness has testified generally as an expert, and, therefore, having knowledge of the different methods, that he would be qualified to testify concerning this method of which I speak. I am not sure whether I understand the full extent of your Honor's ruling.

THE COURT: Simply that it is not cross-examination; that is the extent.

Q. BY MR. WESTALL: If there is cement on top of the top plug, will not there be cement below it? That is, assuming that the plug is used as a top plug in cementing a well.

MR. L. S. LYON: We object to that as immaterial.

THE WITNESS: I must confess that the question is not intelligible to me. I would answer by saying if you put cement below the plug, the cement would be there; and

(Testimony of Paul Paine)

if you put cement above the plug, it would be there; and would be kept separated from the tubing.

(452) Q BY MR. WESTALL: Well, you know if you put cement on top of the plug when you are cementing a well, say, ten or fifteen or twenty feet on that plug gets to the bottom of the well you know you are going to have cement in the bottom of the well, don't you?

A I would expect to. In the bottom of the well. If you know that you have the amount of cement that is below the plug in the bottom of the well, you have an additional amount above the plug. Of course, it will be different cement, with which that cement that is above the plug has become mixed with the mud. Whether that will have set or not, is another question. Some of it will be mixed with mud. I have no means of knowing how much; I have no idea whether five feet or ten feet.

Q How do you know it will be mixed at all?

A Well, I have responded to your question. Shall I reply again? The flow of fluid in a pipe-line is similar to the flow of fluid in a stream. That is my best reply to your question.

So far as I know, the tubing method at the present time is used only for shutting off bottom water and for repair jobs. Bottom water is water which is encountered in formations which are run into after the oil strata have been pierced, and it is desired to plug the hole at the bottom of the well to a point above the water and below the oil sand, and sometimes the tubing method is used for this purpose.

(Plaintiff's case closed.)

(Testimony of Paul Paine)

(454) Los Angeles, Calif., May 11, 1927. 10 A. M.

TESTIMONY OF

PAUL PAINE,

for Defendants.

PAUL PAINE,

called on behalf of the Defendants, previously sworn, testified as follows:

Q BY MR. WESTALL: Mr. Paine, how much money did you receive for testifying in this case, if any?

(455) MR. L. S. LYON: We object to that as not being material, as far as being a witness for Mr. Westall is concerned.

THE COURT: Well, I will hear it. Overruled.

A Well, I can't answer that directly. I can answer your question fully, I think, by stating that I did some work for Mr. Perkins in this matter, in the study of these plugs, in experimenting with the plugs in the field, appearing as a witness for him and preparing the material for affidavits, the engineering material and so on, and for all of that I charged him \$500. I really don't know now whether I receive a per diem for my time in court here. I have not discussed the question of pay from Mr. Perkins in this matter at all. I expect to be paid.

(File wrapper and contents of Perkins patent 1,011,484 received in evidence as Defendants' Exhibit B.)

(456) (Specification and drawings of Inskeep patent 1,443,474 received in evidence as Defendants' Exhibit C.)

(Testimony of Paul Paine)

MR. WESTALL: We also offer in evidence the depositions taken at Shreveport, beginning Thursday, the 26th day of June, 1924, and which were continued from day to day, as contained in this volume which I hand the Court.

MR. L. S. LYON: Do I understand the Court is going to read the depositions at a later date, and may we be understood as not waiving any of the objections, but as making each and all of the objections that are noted in these depositions, and that each of those objections is submitted to the Court for ruling, in so far as the Court considers the ruling necessary thereon?

THE COURT: Were they taken on commission?

MR. L. S. LYON: They were just taken by a notary public, under notice under the de bene esse statute.

(457) THE COURT: There was no stipulation waiving any of the objections?

MR. L. S. LYON: No.

MR. WESTALL: We will stipulate with counsel that they may be considered by the Court for what they are worth, and anyone that is especially worthy of ruling upon shall be called to the attention of the Court in the briefs to follow.

THE COURT: Does that go to the extent of the form of the question, gentlemen?

MR. WESTALL: I think it goes to all of them. I think perhaps the Court can rule on them as he goes along, or give them such effect as the Court wishes.

MR. L. S. LYON: In other words, we will just submit the objections to be passed on as you read the depositions. Just the ones in the depositions.

(Testimony of Walter George)

(Volume of depositions referred to marked Defendants' Exhibit D, and the following is a statement of the evidence and testimony contained therein): June 27, 1924.
10 A.M.

TESTIMONY OF

WALTER GEORGE,
FOR DEFENDANTS.

WALTER GEORGE,

called on behalf of the Defendants, duly sworn, testifies:

My name is Walter George; forty-five years old the first day of January and I guess you would call me a drilling contractor. I went to work on Spindle Top in May, 1901, and I have been connected in the oil business one way or another ever since. I haven't been outside of it. I went to work at Spindle Top as a helper on a drilling rig. I worked as a helper about two years and went to running a drilling rig and ran a drilling rig for several years, and then I was employed as a tool pusher, as we called it, for something like two years, then I went in business for myself. I went from Spindle Top field to Sour Lake. Sour Lake is near Beaumont. I don't know how far it is, but about twenty-five or thirty miles; it is an oil field. I was in Sour Lake in 1903. Then I went to Batson. That is about eighteen miles in back from Sour Lake. I believe it is east or northeast eighteen miles from Sour Lake in Texas. I was there in 1904, from the spring to the winter of 1904. Then I went to Jennings, and I was there about thirty days in the month of July and August, and in September I came up to this country,

(Testimony of Walter George)

what is now known as Oil City. That was in September, 1904. Since that time I have been most of the time around this part of the country. I have been off a few trips but not long. I was in Mexico in 1912, and I have been out of the State on two or three short occasions on wild-cat jobs since then.

During the years 1908 and 1909 I was around Oil City and Vivian, in Caddo Parish, Louisiana. In 1908 I was running nights drilling for Harper—Hearne Harper. When I first went to work for him he was working independently, but along in January or February he and J. B. McCann formed a partnership, and I then worked for them quite a while. I have had experience in oil well cementing.

The first well I ever cemented or had anything to do with cementing was a well known as the Broussard Well near Oil City, in the spring of 1908. We had been having a lot of trouble with blowouts and there had been several wells lost in that way. McCann and Harper had lost a well which got blown out between the casings, and they had brought the cement around, and it was McCann stated they would cement this well before we brought it in, which we did. We siphoned the cement in through the drill stem, we first cemented the surface of the casing, and then we lifted the six-inch and we siphoned it in the same way through the drill stem, and after it equalized itself the cement went to the bottom and pulled the drill stem out and pumped the cement back into the casing. I guess you would call that the siphon method, that is what we called it.

In cementing a well by that method we set our six inch on the bottom and thinned up the water or mud where it

(Testimony of Walter George)

wouldn't be too heavy, run the drill stem in open-ended with no bit on it and no tool joints on the drill stem, just this open four inch pipe, and we mixed the cement and poured it in the four inch drill stem, and the cement being heavier than water it naturally would go down; and we poured all of the cement in, and then we put water on top of that cement, and it would naturally go to the bottom, and the water come out on the outside. When we got it to the bottom—when we got all of the cement in—I don't think on this particular job we put any sacks or anything in on it, but on later wells we did, we put sacks, a few sacks on top of the cement and put the water on top and forced it to the bottom and pulled the drill stem out and put the pump pressure on it and picked up this six inch and pumped it behind. The sacks were put in when the cement got up around the six inch, the sacks would fill up the hole between the six inch and the wall, and that would have a tendency to plug off the pump and you would know that the cement was behind the six inch casing.

Q You pumped pressure fluid in on top of the sacks; what was the result of that?

A Well, it pushed the sacks to the bottom of the six-inch casing.

MR. L. S. LYON: That is objected to as grossly leading and suggestive, and as a deliberate attempt on the part of counsel to get the witness to vary his former testimony, he having stated that the cement was siphoned in and counsel now having attempted to get him to change his testimony; and I mean by "siphoning in" siphoning from the top of the well to the bottom of the well.

THE WITNESS: Well, we siphoned the cement in the casing with the casing sitting on the bottom of the

(Testimony of Walter George)

hole. After it was placed on the bottom of the hole, we pulled out the drill stem, screwed our swivel on the 6-inch casing, and picked it up until we gained returns, and then pumped it back behind the casing, between the casing and the hole, after we taken the drill stem out of the hole.

We forced the cement right on to the bottom. The four-inch pipe was off of the bottom; it wasn't sitting on the bottom; it was off of the bottom sometimes 40 to 60 feet. We would have to kind of guess the distance in setting the 6-inch casing, and set the 4-inch above that. After the sacks got below the 4-inch casing they stayed on top of the cement and plugged off the hole. After the 4-inch was pulled out we put the swivel on and pumped up until the sacks would plug off the pump. The sacks were used for a plug and an indicator to plug the pump.

Q To indicate what?

MR. LYON: That is objected to as calling for a conclusion of the witness, and for a theory of the witness and not for a statement of facts. The witness can state what was done and it is for the Court to decide what the facts were.

THE WITNESS: That the cement was behind the 6-inch casing. With the cement behind the six-inch casing it had a tendency to plug the pump off.

Q By MR. WESTALL: By plugging the pump off what do you mean, how would the pump behave when you say plugging the pump off?

MR. LYON: That is objected to as mis-stating the testimony of the witness, the witness having carefully and guardedly framed his answers to the questions already propounded, and in those answers he has failed to describe

(Testimony of Walter George)

any such method, and now counsel is attempting to ignore the testimony given by the witness by asking him leading and suggestive questions.

A Well, I will say it had a tendency to plug the pump off; by forcing the cement around behind the casing, it would stop the pump.

Q When the pump stopped what did that indicate?

MR. LYON: That is objected to as mis-stating the testimony of the witness and assuming a fact not testified to by the witness, which I believe counsel well knows he is attempting to mis-state the testimony that the witness has given, as the testimony itself will indicate, by stating things in the question that the witness has not testified to.

A I thought I answered that question when I said it indicated that the cement was behind the 6-inch casing.

That method was first used on a well known as Broussard number one. I don't know the section it was in, but it was near Oil City.

Q And after that time was that method that you have described used on other wells?

MR. LYON: That is objected to as grossly leading and suggestive and putting testimony in the mouth of the witness.

A. Yes, sir.

MR. WESTALL: Q Do you know to what extent the method you have described and referred to as the syphoned method was used in this field.

A After we cemented that well I drilled a number of wells for McCann and Harper, and I don't hardly think there was any well after that that was not cemented. They were all cemented, and we used that system until we

(Testimony of Walter George)

worked out one that was better, or that we thought was better. We finally got to using wooden plugs.

The first wooden plug I know about was a well that Harper drilled with one of his other rigs, drilled the well known as Pardue where they used a wooden plug. The first I used was on a well known as the Christian well, Christian No. 1.

Q Now, were there any other kind of plugs used except the wooden plug that you had knowledge of?

MR. LYON: That is objected to as grossly leading and suggestive, and as an attempt on the part of counsel to now get the witness to vary his testimony. He hasn't stated that this method of siphoning through the drill stem with sacks was used on all wells by him up until the siphon method was discarded.

A Nothing except sacks. Sometimes we put shale in the sacks.

Q Now, please describe how you used—how the plug was made and how the sacks were usually inserted.

MR. LYON: That is objected to as grossly leading and suggestive, and assuming a fact not testified to by the witness.

A Well, we put some shale in the sack and dropped it in on top of the cement and pumped it down. That was used the same way as the other sacks; it stopped the cement when it got behind the casing, when it got at the proper place.

Q Now, referring to the first method that you have spoken of, namely the so-called syphoning method after the cement was in place outside the casing what was then done, how was it held in place.

(Testimony of Walter George)

A We set the casing back on the bottom and leave it set with the swivel on top of it and leave it set there until it sets.

Q Was the top of the well closed off?

A Leave it closed off with the swivel on, yes, sir.

MR. LYON: Now, the witness answered the question before we had a chance to object, and we wish to call attention to the leading character of the question just asked this witness on a point that counsel has discussed many times in this case before the court, and the witness has given no suggestion on that point in his testimony, and yet it was put in his mouth by the question.

THE WITNESS: In the siphoning method, after the cement was outside the casing and the sacks were at the bottom, the casing was set on the bottom and left set there until the cement hardened. Sometimes it was—at first we didn't leave them there over three or four days, but later on we got to leaving them longer.

Q Was any method adopted to prevent the cement running back into the casing besides setting on the bottom?

MR. LYON: That is objected to as suggestive and leading, and in his answers where the counsel asked him questions to describe what was done which were not leading and which he answered, he has already failed to make any such suggestions in answers to the questions just referred to, when he was asked to describe the complete method. We now call attention of the court to the attempt of counsel to have this witness state facts or give testimony following suggestions of counsel after the failure of the witness to state such facts in answer to the general questions that were not leading, and which, if the facts

(Testimony of Walter George)

were true and in the mind of the witness, would be brought forth in the answers of the witness heretofore.

A Nothing more than leaving the swivel on with the pressure on.

Referring again to the method in which the bag or sack containing shale was used, when the shale bag would hit the bottom we found out the shale bag was better than just the sacks because it would stop up the entire six-inch casing—that was what we were using at that time, most of us, six inch, and it would stop the pump and check it off and we knew that the cement was behind the casing and we set back on bottom leaving the pressure on it and leaving it to set.

In any job of cementing, when we decided to cement the well, we cut our hole for our 6-inch casing, ground the 6-inch seat, got a line of the fluid ready to put in, and this siphoning method as I described a while ago we run our 4-inch in the hole without any bit on it, just left it open, poured the cement on top of the 4-inch pipe and when we got in as much cement as we wanted we put the sack in on top of it and we never used—I don't think I remember any instance where we used sacks of shale in siphoning through a 4-inch, we did that after we got to putting it in through the 6-inch, not the four.

Besides the sacks with shale we used wooden plugs.

Q Please describe fully just how you cemented the well using the wooden plug.

A The first well I ever cemented with the wooden plug—Harper had cemented one before this—

MR. LYON: I object to that as incompetent, no qualification.

(Testimony of Walter George)

THE WITNESS: I had tried to cement the well with this siphoning system, and when we pulled the casing up it stuck and we couldn't move it and the well blew out on us before the cement set. We had some gas above, you see, so we made a plug that would fill up the hole that was below the six-inch casing and we put the plug in and got our displacement by blowing it out with gas. We got the displacement and then we cemented and put the plug in and put cement in on top of it and pumped it to the bottom. We could pump around the 6-inch but we couldn't just plug it up. By putting the plug at the bottom it filled the hole below and put it behind all of this 6-inch casing. That was on the Christian well. That was in March or April, I think. The well was either started in March or April and finished up in either April or May, 1908. I couldn't say the exact date when the well was cemented. It was in the spring of 1908, though, in March and April, I think, we drilled that well. I know when we went to Vivian and drilled the first well, and I know all the wells I drilled, and I know about when I drilled them and about how long it taken me to drill them, and I know the Christian well was the fourth well I drilled after I moved to Vivian. Now, I am not sure, I think I stated 1908, that is the spring of 1909 I should say. We went to Vivian in 1908, and this was the fourth well I drilled which made it 1909, the spring of 1909, the Christian well. At the time of cementing this well I was employed by McCann & Harper.

Q Now, do you know who was present at the time that Christian well No. 1 was cemented as you have just described?

(Testimony of Walter George)

MR. LYON: Do you refer to the recementing and not the original siphoning job? I want to know so I can be definite about what you mean.

MR. WESTALL: I am not talking about any siphoning job now. I am talking about the cementing.

MR. LYON: Well, that well, as I understood the witness' testimony, was cemented twice.

THE WITNESS: We cemented at it but we didn't cement it. It blowed out and we had to put another batch in.

MR. WESTALL: I am inquiring about the time the plug was used and when it was cemented with the use of the plug.

THE WITNESS: We had a fellow by the name of John Burroughs, who is now dead, died something like a year or eighteen months later, maybe two years later, and a fellow by the name of Mahaffey, Harmon Mahaffey, and Fred Kyle, and a fellow by the name of Crawford. He was the fireman on the job, and there was another man or two, but I don't remember just who they were. The cementing on Christian No. 1 was in the spring of the year, either March or April, not later than May, but I think it was in April, 1909. I haven't any record of the cementing of that well. I know of some records of the well when it was completed; when it was completed, there is a number of those here. That was a successful job; we brought in a big gas well there and it held fine.

After that time I know of instances in which one or more plugs were used in cementing wells. The next well we drilled after that well was completed was well commonly known as the Bell well, but I think the records

(Testimony of Walter George)

around here carried it as the Vivian Mercantile Well. The Vivian Mercantile Company closed out the Bell lease on some mortgage on the property. When we were drilling the well it was known as the Bell well. We used plugs on that well. It was directly after we finished up this job on the Christian, which would have made it in April or May. I think maybe I was there part of the two months, April and May.

Q Please describe how the plugs were used in cementing this Bell No. 1.

A Well, I am not very clear on the Bell No. 1. At that time McCann & Harper—

MR. LYON: I object to the testimony of the witness in regard to that, no qualification having been shown and no foundation laid.

MR. WESTALL: I think there has been; and anyway the objection is very late.

MR. LYON: I move to strike the testimony of the witness out in regard to the alleged operation on this Bell well, in view of the last remark of the witness showing no foundation and no qualifications.

THE WITNESS: I am not sure whether we used wooden plugs there or the sacks. Mr. McCann was in charge—sometimes he would be in charge of one well and the next time probably Harper would be there, and whichever idea they wanted to use that is the idea we used there. Usually the sack or the wooden plug and I am not sure which we used in that well. The next well we used the wooden plug on that I am positive about and could say positively that we used the wooden plug was the Jolly

(Testimony of Walter George)

No. 2. We used a machine turned plug on that well. That was in September, 1909.

Jolly No. 2 well was an 8-inch well. We set around 900 feet of 8-inch casing, and Mr. McCann brought me out a machine turned plug and that was the first machine turned plug I had ever used. We had been making them with an ax or an adz, and we set the pipe on the bottom, the 8-inch pipe on the bottom, and run a few joints of thribbles four inch into the hole and connected our gas in it, and plugged it and pulled up to make the displacement. After the displacement was made we mixed our cement and put it in the hole. We put a few sacks in after the displacement was made; we dropped a sack or two in on top of the water, and then we poured our cement and then we put our plug in with some gaskets on top of it, and put our swivel on, and picked up the 8-inch pipe and pumped it until the plug hit the bottom and plugged off the pump, and then we set our casing back down and left the swivel on it, and let it set until it was hardened. The plug in that instance was used to indicate that the cement was behind the casing and at the proper place where we wanted it. This fellow Burroughs that died was present at the cementing of this Jolly No. 2 well, and a fellow by the name of Claude Dougherty; I don't think he is dead. The last I heard of him was some months ago when he was in El Dorado, and then there was the dead fellow that I named and myself.

On the Christian job there was—I don't know—let me see; Mr. McCann was there superintending the job, J. B. McCann, and there was an old fellow with us whose name I don't remember right now, I remember he had a mouth

(Testimony of Walter George)

full of gold teeth, but I don't remember his name. He was from Beaumont. That well was cemented in September, 1909.

Q What do you understand by securing circulation; did you ever hear that expression used?

MR. LYON: That is objected to as grossly leading, and as an unfair attempt on the part of counsel to bring that out without the witness having said it, and the witness did not recognize there was such a thing in any of these operations, and the former attempt of counsel to get the witness to explain just what was done in these alleged cementing operations, and now counsel proceeds to suggest to the witness things that he would like to have him say which the witness has not said.

THE WITNESS: I have heard the expression used ever since I have been in the business. It means circulating fluid through the different casings, the casing to the drill stem and circulating through the drill stem up into the casing, forcing it to the outside of the casing. We always circulate the water in cementing to be sure the well was clear, and we put the cement in and we pump it down and circulate it back up on the outside until the plug hit the bottom and held the cement on the outside.

Q Now, you refer to a great many wells that were cemented by what you refer to as the siphoning method, and also by the plug method. Please state whether or not circulation was established in these jobs, in cementing, if you know.

MR. LYON: That is objected to as grossly leading and suggestive, particularly in view of the former question, wherein counsel asked this witness to describe fully

(Testimony of Walter George)

and in detail such operations, and in which the witness mentioned no such statement or method.

MR. WESTALL: I think counsel is in error in the purported former question. He was not asked to describe the method used in the operations prior to cementing. He was asked to describe the process of cementing which consisted of placing the cement in place. I am not asking him regarding matters which precede the cementing of the well.

MR. LYON: Which is incorrect in regard to the operation incorporated in the questions asked the witness as will appear from the record itself and this is an attempt to harp on words and permit Counsel to suggest to the witness something that the witness has not suggested and failed to state or even suggest as having been a part of such operation.

(Question read)

MR. WESTALL: The word 'in cementing' is incorrect and it should be changed—

MR. LYON: I object to changing the record at all for the reason that the question as just read is exactly as you asked it, and that is borne out by your argument that it had nothing to do with cementing which is shown to be grossly in error.

MR. WESTALL: The question should have been, as the Reporter indicated just now in all of these jobs of cementing as obviously he would not establish circulation in cementing because it is a step which must precede the cementing itself.

MR. LYON: Let the record show our same objection.

A We had to circulate the fluid if you got the cement to the bottom there was naturally circulation, there was

(Testimony of Walter George)

no circulation after the plug hit the bottom and stopped the pump.

ON

CROSS EXAMINATION

Mr. George testifies:

I am interested in the outcome of this case to the extent that we have developed this system of cementing and we don't like to be made to pay for it after we helped develop the system.

Q At the present time you are employing the method of cementing and have within six years last past continuously on the wells on which you were drilling, constituting an infringement of the patent in this suit, if that patent is valid, and are liable for a judgment against you, are you not, in the event suit is brought against you alleging infringement of the patent here in suit?

MR. WESTALL: I object to that question as obviously calling for the legal conclusion or a legal conclusion on the part of the witness. In order for him to answer that the witness must know as a legal proposition what constitutes an infringement, what constitutes liability, and I direct the witness that he need not attempt to answer it unless he feels that he knows as a matter of law the different legal propositions that have been presented to him.

A Well, the six years referred to I will go back further than that. I have used the system since 1908, and I didn't know there was a patent on it until September 1923, when I was notified I was infringing on the patent. I used it continuously and I don't remember but one well I drilled where a casing was set that I didn't

(Testimony of Walter George)

cement. In September of last year I received a letter notifying me that I was infringing on the patent, but I had no notice and knew nothing about any such thing until that time. Since that time I have employed such method in my operations; I have cemented wells since then.

I have discussed the testimony to be given by me in this case with a number of people prior to giving my deposition. I have discussed it—I wouldn't say with all of the old time fellows in this country, but it was discussed at various times among us. Mr. Hearne Harper and I have discussed some of these wells, some of the dates. We discussed more than the dates. We discussed the well in general, because it was kind of like ancient history, digging it up. I have discussed it with my partner and with my office man, and with several others, I couldn't name them all. I have not discussed it with Mr. T. M. Milling, no more than generally—well, I didn't discuss it with him myself at all. In the meeting of the Mid-Continent we talked it over. The meeting was not called for that purpose. I was present at the meeting. Mr. Harper was not present. Mr. T. M. Milling was present. I am not sure about Mr. Phillips; I don't know whether he was present or not. I don't know what I did say at that time; I didn't say much of anything. When I said "we" discussed it among ourselves I meant us fellows that was doing the cementing back in 1908 and '9. Probably some of the people with whom I discussed it were people who were advised that they were infringing this patent, like myself, and some wasn't. I discussed it with Mr. Slim Crawford. I don't know whether he had a notice. Some of the boys had got

(Testimony of Walter George)

them and some hadn't. Mr. Crawford and I were talking about different jobs we had cemented. He was present on some few of these different wells. He was night driller on the well drilled known as Childs One. It was in the winter of 1908 and '9. That is the only one he was on with me prior to January, 1910, that I have personal knowledge of. I don't recall what all he did say about what method had been used on that well. The wooden plug wasn't used just on that well. I don't remember just what he did say.

I don't think I discussed this matter with Frank Smith. I don't think I know him. I discussed it with W. C. Wolfe. He is in Shreveport. Mr. Wolfe was not present on any jobs I cemented. I have not discussed it with C. W. Brown. I don't know whether Mr. Wolfe received notice of infringement. I came to talk with him about it because when the boys received the notices naturally we talked about it. We just discussed it like anything else. I don't know how many times I have talked about it. I haven't talked to any one fellow more than once. I may have talked to different fellows about it.

I didn't talk to Mr. G. H. Butler. I don't know him. I haven't talked to D. C. Richardson. He was not present at any of my cementing operations prior to January, 1910. I didn't talk to W. A. Garrett. He was not present at any of the wells I drilled. I don't think I have talked to O. L. Hickman. He was not present on one of these wells.

I have talked about it with Fred Kyle; he was present on some of these wells. He was present on the Christian 1 and the Bell well and the Childs well, and he was present

(Testimony of Walter George)

on the Broussard No. 1. He was present on all of the wells I drilled, from that one I drilled, Broussard No. 1, in the spring of 1908 until I drilled the Jolly well in the spring of 1909, and not after that Jolly well. I talked to Mr. Kyle about eight or ten days ago. He just came in eight or ten days ago. I have talked to him two or three times since that first time. I don't recall all he said about it the first time I talked to him; I don't remember.

I have talked to Hearne Harper about it. I talked to him yesterday; yesterday wasn't the first time. I am not sure, but I think in El Dorado was the first time; it must have been two or three months ago. I don't know just when it was. I don't know when the next time was, but it was sometime later. I don't recall all he did say.

I talked to Mr. Mahaffey about it. He was present on some of these wells; he was present on the Childs 1, and two of the Pitts wells, No. 1 and No. 2, and Christian Well No. 1, the Vivian Mercantile Company No. 1, the Jolly No. 1, and another well, I don't remember just what the name of the well was, and also the Jolley No. 2, and maybe one or two after that.

I talked to L. A. Pyle about it. He was a helper on the job. He was on the Broussard well, and he was on the well that I didn't mention a while ago, about Mahaffey, which was drilled in September, 1908. I think yesterday was the first time I talked to Mr. Pyle about it. I think Mr. Phillips was present when I talked to Mr. Pyle yesterday, and this gentleman here, Mr. Westall, and Mr. Harper, and Mr. Kyle. I don't remember anybody else. That meeting was yesterday afternoon, about noon, I guess, or a little after, close to noon. T. M.

(Testimony of Walter George)

Milling was not present. There might have been somebody in and out, I don't remember any, though. That particular meeting was held in this office where we are now taking my deposition; we met in this room here. No other meeting took place here that I know of. We went out to lunch together, Mr. Harper and Mr. Kyle and myself. I talked to D. M. Teague in here this morning. He was on the Broussard No. 1 well. I don't think any others.

I didn't discuss it with Mr. Powell, of Vivian, Louisiana. I don't know whether he was present at any of these wells. I don't know what Powell you are talking about.

Q A. F. Powell, of Vivian Bldg., Vivian, Louisiana.

A Mr. Powell might have been present, I don't know, he wasn't part of the crew on the job, I know. I can't remember to say whether he was present or not.

Mr. Joe Childs was present on some of these, on the Childs No. 1. That is the only one I can say positively that he was around there quite a bit.

I wouldn't swear positively, but that is the only people I can recall right now that I have talked to about this matter. I did talk to Mr. Bancroft, of the Shreveport Times, about this matter, along in September. I don't know all that I stated to him, but I told him I cemented wells as far back as the spring of 1908. We had quite a conversation about it. I stated that I cemented wells in 1908, for one thing. I told him we used the method called siphon and the plug method, the wooden plug method. I told him I cemented that way in 1908. Oh, no, I don't think I told him the wooden plug was used in 1908. I don't remember. I did not tell him about any particular well as

(Testimony of Walter George)

having been the well that was cemented by the wooden plug. I don't remember whether I did or not. I told Mr. Bancroft as far as I knew I thought Mr. McCann was the inventor of this method. As far as I know that is correct.

Q I will show you a newspaper article printed in the Shreveport Times of date November 17, 1923, and will ask you if you saw the same and the time it was published.

MR. WESTALL: We object to that; in the first place it is not proper cross-examination. In the second place, I object to it if it is an attempt to prove any publication it is purely hearsay evidence, not the best evidence, and there has been no foundation laid for secondary evidence.

A Yes, I think that was in the Sunday paper, as well as I remember.

MR. LYON: The article identified by the witness is offered for identification and also in evidence as Plaintiff's Exhibit No. 1.

MR. WESTALL: This is objected to as incompetent, irrelevant, and immaterial, and not the best evidence, no foundation having been laid for the introduction of secondary evidence, and it is not proper cross-examination.

(Document marked Plaintiff's Exhibit No. 1 and attached to deposition.)

Q BY MR. LYON: I call your attention to this article to the following: "The following is a story of a man having personal knowledge of facts set forth," and to the matter in question following such explanation, and will ask you if you gave that statement or so-called story to Mr. Bancroft, on the occasion stated.

(Testimony of Walter George)

A I was interviewed by Mr. Bancroft, but I don't remember just what I told him. If the article refers to Walter George, I am the man referred to as giving this story.

Q Was the plug method of introducing the cement directly through the well casing and not through the inverted 4-inch pipe or drill pipe used on Broussard Well No. 1 at Vivian?

A Broussard No. 1 is not near Vivian, but is near Oil City. The wooden plug wasn't used at all on that well. That well was cemented by that siphon method through the drill pipe. I did not use two plugs in the Dawes No. 1, Childs No. 1 well.

Q Then this statement in this article says, "Two plugs were used for the first time in Dawes No. 1 Childs, a mile and a half east of Vivian, George being the driller and completing it in November of 1908," is incorrect?

A I am not responsible for that newspaper statement. It is not correct. I do not know where Mr. Bancroft got that portion he has included in the story as just quoted. I state I did not tell him that the Childs No. 1 Dawes well was cemented with two plugs. After this article came out I did not call his attention to the incorrectness of it. I don't think I have talked with him since that was published; I don't remember. I don't think I stated to Mr. Bancroft that subsequent to the completion of the Broussard Well I myself drilled eight more wells prior to March, 1909, using the process in each, that is, the two plug process. I don't think I made that statement.

Q You state positively you did not prior to March, 1909. I ask you whether you made such a statement to Mr. Bancroft or not.

(Testimony of Walter George)

A How many wells?

Q Eight wells.

A I did not. I don't remember exactly what I did say. I remember I told him I cemented all of the wells I drilled.

Q By this plug method. I am referring to the plug method in which you use a plug which would force the cement down through the regular well casing and in which you did not use this siphoning through the drill pipe. I am referring to the same method you described as using first back in 1909.

A Well, I described more than one method.

Q Well, let's see, when did you first use the method in which you dispensed with siphoning through the four-inch drill pipe?

A We used some sacks on Childs 1, I think was the first one. There might have been some shale in the sacks. I don't remember whether there was or not.

Q When was the first solid plug used, the first one that you can tell us of which you have personal knowledge, going down through the regular well casing; the first one where you used that as a barrier going down through the regular well casing?

MR. WESTALL: What do you mean by barrier? The witness hasn't used that word.

MR. LYON: The witness has; he tried to answer the question and I understood him to say that.

THE WITNESS: I haven't used that word, though.

Q Well, I beg your pardon then; I mean solid plug.

A The first wooden or solid plug I used was on Christian No. 1. I am not just positive when I used two

(Testimony of Walter George)

plugs first. When we used—we first used the bottom plug—we cut off a short plug and put it in the bottom to stop the top plug. I don't know when that was used the first time. The first well I can positively say I used two plugs was on some of these Jolley wells; I don't remember which ones, either, that I used it on; there were seven in all; seven Jolley wells. The last Jolley well was drilled sometime in the latter part of 1909, the first of 1910, I don't remember exactly just when.

Q Now, in this article it refers to when the California boom broke in 1909 and many drillers left Oil City for the new pool. What new pool did you refer to?

A Yes, I remember when that happened. I don't remember what California field that was, or what boom it was. I haven't any telegram now referring to this cementing, but I received a telegram about the time these fellows got out there. I can't just say what date I received that telegram, but it was in the summer of 1909; I am not positive whether it came from Charlie Railsbacher or John Edwards. I have a letter or two and a telegram that came from them and I am not positive which one the telegram came from. I don't remember whether the cementing was mentioned in all or not, but it was mentioned in some I cannot state from whom I received the communication that made such mention. I am not positive whether it was Railsbacher or Edwards. I think Railsbacher is dead; I am not sure, though. I can not produce these letters or telegrams. I didn't think it was that important at the time or I would have kept them.

(Testimony of Walter George)

Q What do you know about these facts: "Notice to cease infringing upon patent on method of cementing oil well casing, invented, it is claimed here, by a Shreveport Drilling Contractor, perfected by Shreveport Drillers and practiced in Caddo years before the patent was applied, has been served on numerous operators in North Louisiana and South Arkansas fields by Earle P. Halliburton, as a result there is a mighty stir in the ranks of the Louisiana-Arkansas Division of the Mid-Continent Oil and Gas Association, and a meeting has been called to be held Tuesday night for the reception of legal advice, and to see what can be done in the premises, in general."

MR. WESTALL: I object to that as the question is asking for purely hearsay testimony, and furthermore it is incompetent, irrelevant, and immaterial, and not proper cross-examination.

THE WITNESS: Well, I received the notice myself addressed to George & Jones Drilling Company in September of last year, the 23rd, I believe it was, or the 13th—the 13th or 23rd of September, I don't remember which. I stuck the notice in my desk and paid no attention to it. Mr. Bancroft came up to my office and asked me what I knew about it. Since the receipt of that letter I might have made some remark about it to my partner, or some of the office force. I don't remember anybody else. I don't know whether this interview with Mr. Bancroft was before or after any meeting of the Division of this Association. I don't think I attended the meeting; if it was on Tuesday night I know I didn't. I don't remember attending any meeting at night at all. I know I

(Testimony of Walter George)

haven't attended any night meeting. I am a member of this Association.

Q The Association is putting up money to secure and report these depositions, is it not?

MR. WESTALL: The witness has not been shown to be qualified to answer that question. You had better call some of the officers as your own witnesses; this isn't proper cross-examination.

MR. LYON: It shows interest, and we are entitled to show that.

THE WITNESS: I don't know positively that they are. It is my impression that they are, yes. I think Mr. Phillips here in this room represents that Association. I wasn't up there when he was appointed. I didn't attend that meeting so I couldn't say positively, but I understood he was appointed.

MR. WESTALL: Now, I move to strike out that testimony for the reason that it is hearsay and simply a conjecture on the part of the witness.

THE WITNESS: I don't know just when McCann made this invention which I refer to in my statement that appears in this article.

Q How do you know he was the inventor?

A So far as I know he was the first man I ever talked to about it.

There was some dispute and some difference in opinion between Mr. McCann and Mr. Harper as to what kind should be used. They were trying to work out some cementing method to cement casing to keep from having blowouts, and McCann & Harper figured out how it should be done; different ways; just difference of opinion.

(Testimony of Walter George)

Q Who favored siphoning through the 4-inch drill pipe, McCann or Harper?

A As well as I remember, McCann was the man on the job and superintended the first job of siphoning there. Later McCann favored the plug; he brought the plug out and had me put it in. As far as I know, Mr. Harper favored the plug. McCann wasn't opposed to the plug after it was used, as far as I know, he used it.

Q What do you mean by the testimony you gave on your direct examination that you believed McCann was on the job because the plug method was used and Harper wanted some other method?

A Well, after we siphoned several wells and then we used the plug, and then with the sacks, and McCann brought out a plug after we had used one we made and we used it. I don't think I said I believed McCann was there because plugs were used, and Harper, if he had been there, some other method would be used; in fact I am pretty sure I didn't, because McCann was superintending the job and he was the man that brought it out.

Q How many wells were cemented through the drill pipe, to your knowledge, by McCann & Harper, before the wooden plug was used, the ones you cemented?

A Well, I cemented the Broussard No. 1, the surface casing, on the Posey Well No. 1, we didn't set any surface casing on that well. I cemented the Childs No. 1 and the Pitts No. 1 and I am not just clear about the Pitts No. 2, whether they used the wooden plug there or the sacks. On Jolley No. 1 the plug was used, and Christian No. 1 was the first one I used the plug in.

(Testimony of Walter George)

Q What was the advantage of the plug used in the Christian well before this former method you have described?

A This made a better plug than the sacks did; by that I mean it cut the pump off better; stopped circulation. The others didn't as good as the plug did, sometimes they would leak, would stop up the bottom of the six-inch as good as the plug.

I cemented Childs No. 1 in the latter part of 1908, took the job in January, I think, the well was cemented and set there over the Christmas holidays before that. I am not positive whether we put shale in the sacks or just put the sacks in on that well. We used this 4-inch drill stem.

(Recess until two o'clock p. m.).

THE WITNESSS: I had lunch with Mr. Hearne Harper today. We discussed the wells the cementing was done on at times but we never discussed just how the wells were cemented, that part wasn't discussed at all. We discussed different wells that were drilled, but no particular date.

In November, 1909, I was working for the Wolfe Drilling Company. I left McCann & Harper—I am mistaken in the date, I left McCann & Harper—it was in the latter part of the summer—it was in the fall—no, it was 1910, must have been in the summer of 1910. In October, 1909, I was working for McCann & Harper. It was on some of the Jolley wells, I am not sure which one, there are seven of those. We drilled No. 2 in September. In September, 1909, I worked on Jolley Well No. 2. It usually takes from 25 to 35 days to drill a well; I think

(Testimony of Walter George)

we were on that well about 25 or 30 or 35 days. In March, 1909, I was with McCann & Harper. I was on the Jolley 2, I guess—not the Jolley, but the Pitts 2 in 1909. Pitts No. 2. I was there about the same length of time, something like 25 or 30 days.

In May, 1908, I was drilling the Broussard No. 1 at Oil City. In August, 1908, I was at Vivian, but wasn't working at all. In December, 1909, I was on one of the Jolley wells. I couldn't say just which one, but evidently about 3 or 4, maybe 5; there were seven of those wells. I am not positive which one it was. I drilled all seven of them, that is, I drilled on all seven. I finished up No. 7 and I drilled the rest.

If I worked on any of the wells drilled on the One Hundred and One Fee Busch Evertee it was later than 1909; I don't think I worked on any of them. I am not sure what lease that is. Some of these leases the Busch Everett started to drill after they got them in fee, I don't know which one they called the Fee lease. I don't know which lease that is.

I remember Jack Garrett. I worked with him a number of times. I don't know that I could name all of the wells; I worked with him as far back as 1903. I remember the acres that were held by Busch Everett and drilled for Busch Everett by McCann & Harper southwest of Vivian near Harts Ferry. I didn't work on that lease at all. I have been there frequently. I was not there at the time the first well was drilled. I don't know when it was drilled. I don't know about the month those wells were drilled down there.

I worked on some Levee Board wells, but it was after 1910, after 1909 and the middle of 1910. I don't know

(Testimony of Walter George)

what one I worked on; I don't remember. I drilled until about the middle of June, 1910, and then I was field manager for two different companies, and I was around a number of wells, ten or fifteen wells a day.

I don't think I was present when any of the Levee Board wells were cemented by McCann & Harper in 1910 or 1911. I don't remember any of them; I wasn't around any of their work after June, 1910.

In January, 1910, I was working for the Wolfe Drilling Company. Now, wait a minute, if I am not mistaken, I must have been working for McCann & Harper, in January, 1910; I quit them in June, 1910. In January, 1910, I was drilling a well for McCann & Harper known as the—I really don't know whether that was one of the Jolley wells or the Worley well that was an offset to it, it was in that same neighborhood. I am not sure which well it was. I don't remember that we cemented that well. It was probably cemented at night, some of these wells were cemented at night. I don't remember that I didn't cement it. I don't remember just which one the Levee Board Section 33 Well No. 1 was. I only drilled one well on the Worley lease; I don't know how many more were drilled after that, whether there was any more or not. The only one I have knowledge of is the one I just referred to.

I have probably been at the Edwards Well No. 1 drilled by McCann & Harper for the Busch Everett; I don't know whether I was on it or not. I don't think I was present when it was cemented. I am sure I was not. It was drilled, though, in the latter part of 1908 or the

(Testimony of Walter George)

spring of 1909, but it was a well I had nothing to do with. I remember the well and the lease.

In August, 1909, I had just finished up the latter part of July or the first of August the Bell well. I had a long layoff in there somewhfre, around three or four weeks, and I don't know whether it included all of August or not. I was working on the Christian Well before I worked on the Bell well. That was in April and May. The Christian Well was drilled in April and May, or March and April, it might have been part of April *and* May. It generally takes from 25 to 35 days to drill.

Q You say it generally takes. When testifying in regard to the length of time you were on any of these wells, you are not testifying from your actual recollection of the actual length of time of these operations, but you are figuring on about how long it should take to drill that kind of a well, is that correct?

A Well, on some of these wells it took longer than others; I can't testify to the exact days of any of them without going to the records.

I think I went from the Pitts well to the Christian well, and then I came back to the Bell well. Between the Christian 1 well and the Jolley well I worked on the Bell well or the Vivian Mercantile well. I don't know exactly what I did the rest of the time; we laid four or five miles of 2-inch line for one thing.

In November, 1908, I was on the Childs 1. I finished up Childs No. 1 in January, 1909. After finishing the Broussard No. 1 I started to work again in December,— I meant September.

Q You didn't do anything from January to September?

(Testimony of Walter George)

A I didn't finish the Broussard well in January. I finished it in May or the early part of June. The first of September I moved my rig to Vivian. In September I started on the well known as the Posey Well, for the Gulf. That is not 1909, but 1908. I was on the Jolley lease in October, 1909. It was evidently No. 3 well. I say "evidently" because I finished Jolley No. 2 in September. I drilled Jolley No. 1 in June, 1909, May and June; I know it was blackberry time. I drilled Pitts No. 1 before Pitts No. 2. That was after the Posey Well. Pitts No. 1 was in January. The Christian well was the next well I drilled after Pitts No. 2. The Bell was the next after the Christian, and Jolley No. 2 the next after the Bell. In March, 1910, I drilled on Pitts 3, I think it was. I went back to Pitts lease and set the casing on the well and never drilled a day. I can only give the approximate dates of the wells I drilled from the time I finished Jolley No. 2 up until I quit the company; I can't give the exact dates. I can name the wells in rotation and about when they were drilled. From Jolley Well No. 2 I drilled 3, 4, 5, 6, and helped finish 7. I jumped off of the Jolley lease and drilled one—drilled one or two wells and in the meantime finished up No. 7.

Q What wells were these two wells you report as jumping off to?

A Well, one I just told you about a while ago, I am not sure just whose that was, but it was adjoining or an offset to that section. And that Worley Well I told you about a while ago. That Worley well intervened from No. 3 and No. 7. There was some of these wells I was on I didn't complete entirely, and they had other crews on

(Testimony of Walter George)

it and switched around. It was evidently in October I started on Jolley No. 3. I am not sure whether I finished up one of these unknown wells, as you call them, before I went to 3 or the Worley well. One reason I fix September as the date I finished Jolley No. 2—I don't remember just when it was finished, but it was in September. I remember I was on that job when the report came out different from what it was on one of them; I was on that job when Dr. Cook discovered the North Pole, and that is the way I remember it. Another way I remember it outside of Dr. Cook's discovery, I looked over the records of some of these wells since; the log of the well. Some of them I have. I will not produce them because I haven't them with me. I haven't the original logs; I have copies at my office. I have copies and have access to the copies of practically all of them. I have copies or have access to all of these wells. I have copies of some of these logs myself. I don't remember just exactly what I have got; I have the two Pitts Wells, 1 and 2. They are copies of the logs; I think I can get the original logs. There are several others. I have the Jolley 2—I haven't the 1 and the Bell and the Vivian Mercantile Company and the Christian. The Bell and the Mercantile Company is the same well. Those logs at this particular moment are in my office, over in the Giddens-Lane Building. I expect maybe I have got something like a hundred. I don't think I have all of those that I have testified about. I will bring over all that I worked on from 1908 until I left the Busch Everett.

(Recess while witness went to office and procured records referred to.)

(Testimony of Walter George)

Q Now, these five sheets of paper that you have produced in response to my question are the papers and the source by which you fix the dates you have given us, is that correct?

A No, sir, I don't say that is exactly the way I fixed the dates, I drilled the wells, all of them, I know when I went over there to drill them and I know that I drilled them and have reason to believe that those are copies of the original logs which I am sure will be produced just a little bit later on in this court. They may be in possession of witnesses for the defendant; I know they are available. They are still in existence. Mr. Harper told me they were available. He can get them. I don't know whether he has them.

Q All you know about them being available is what Mr. Harper told you?

A And others. I don't know just who told me. Mr. Harper did not furnish me these copies. Mr. John Greer furnished them to me. He got these copies for me. He is a contractor here in the field. I don't know where he got them, but all of the companies doing business in the field at that time had these copies. I know they are in the neighborhood of correct, I know they are correct so far as the month they were drilled.

Q Then in so far as your testimony in regard to the dates, regarding the drilling of these wells, differs from these five sheets, your testimony is wrong and these sheets are right, is that correct?

A. No. I testified I drilled these wells and gave the approximate dates, and in your cross-examination you might have got me to say or asked me questions where I

(Testimony of Walter George)

got crossed up a little in switching back and forth, as you did, but I do know they were drilled approximately at that time.

Q Then if you testified contrary to these sheets your testimony was correct and the dates you want to stand on are those on these sheets of paper, is that correct?

A Well, I might answer that question by letting you answer it. These sheets are approximately correct. As to the dates I can't tell them offhand, not the exact dates.

Q Do you want it understood that we are to take these records in lieu of your testimony as to the dates?

A You can do as you please about it.

Q But which do you want it understood is correct, your testimony or these sheets, if there is any difference?

A Either one, because I have testified only approximately as to these dates.

Q How do you know you have?

A How do you know you are living?

I read these sheets of paper over in the last day or two, probably yesterday. I never paid any attention to the dates of the month, I looked over to them to see if they were the right logs. I got them from Mr. Greer. I don't know from what they are copied. Mr. Harper has told me the originals are available.

(The five sheets of paper were identified as Plaintiff's Exhibit 2, and it was stipulated that they be copied into the record and the originals be returned to the witness.)

THE WITNESSS: Mr. Greer gave these to me in the latter part of September or October, after I received notice of this claim of infringement.

(Testimony of Walter George)

MR. WESTALL: Apparently on the face of them they are all of the same type and on the same paper.

THE WITNESS: Whoever made them copied them all.

MR. WESTALL: Yes, that seems to be correct, they are on the same paper and the same type, apparently.

(The sheets so identified and copied into the record are as follows:

A. L. PITTS WELL NO. L.

Located 300 feet NW of SE Corner of North $\frac{1}{2}$ of NE- $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 31, Township 22, Range 15, and 2 miles slightly SE of Vivian, Caddo Parish, La.

Commenced drilling Jan 19, 1909—Completed Feb. 4, 1909.

CASING RECORD

8 in. casing 344' 6"

6 " " 1060' 8"

DRILLING RECORD

18 Red Clay

30 White Water Sand

150 Blue Water Sand

195 Blue Muddy Shale

196 Hard Gray Sand Rock

344-6 Blue Muddy Shale

345-6 Thin Sand Rock

354 Muddy Blue Shale

355-6 Rock Shell Hard

604 Blue Muddy Shale

605 Rock Shell, Hard

751 Blue Muddy Shale, Few Scattered Boulders

(Testimony of Walter George)

752-6 Rock Shell, Hard

876 Blue Hard Shales & Scattered Boulders

877 Rock Shell, Hard

1060-8 Blue Shale, Rather Hard. Few Scattered Boulders

1088-5 Vivian Gas Sand

REMARKS

Baled well at above depth and developed a gas or rock pressure of 456 pounds and a volume capacity of fifty million cubic feet per 24 hours, and is one of the greatest gas wells in the North West Louisiana Field, and probably in the world. McCann & Harper, Owners & Drillers.

J. S. JOLLEY & CO. WELL NO. 2.

Located 250 ft. SE of NW corner of East $\frac{1}{2}$ of SE $\frac{1}{4}$ of Sec. 27, Township 22, Range 15 and $1\frac{1}{2}$ miles SW of the Town of Houston, Caddo Parish, La.

Commenced drilling Sept. 11, 1909—Completed Sept. 29, 1909.

CASING RECORD

10 in. casing 299 ft.

8 “ “ 895 “

DRILLING RECORD

70 Red Sandy Clay

71 Shell rock

168 Packed sand

168-6 Shell rock

174 Water sand

207 Packed sand

208 Shell rock

218 Gumbo

220 Hard Flinty Rock

(Testimony of Walter George)

228 Gumbo

229 Hard flinty rock

234 Gumbo

236 Hard flinty rock

299 blue shale

300 Hard flinty rock

382 Blue shale

383-6 Hard flinty rock

507 Soft blue shale

508-6 Hard flinty rock

642 Soft blue shale

643 Hard flinty rock

791 Soft blue shale

817 White chalky rock good gas show

825 Gumbo

826 Hard flinty rock

848 Gumbo

850 Very hard flinty rock

895 Gumbo

850 Very hard flinty rock

895 Gumbo

895-8 Cap rock

902 Gas sand good gas showing

903 Hard rock

905 Second gas sand.

REMARKS:

Well blew out in top of second pay showing a volume capacity of seventy-five million cu. feet or better of gas per 24 hours, with a rock pressure of 455 pounds.

The Busch Everett Co. Owners
McCann & Harper, Contractors.

(Testimony of Walter George)

VIVIAN MERCANTILE CO. WELL NO. L

Located 250 ft. NE of SW corner, Sec. 29, Township 22, Range 15 and 2½ miles slightly SE of Vivian, Caddo Parish, La. Commenced Drilling April 22, 1909—Completed May 12, 1909.

CASING RECORD:

10 in Casing 292 ft

8 “ “ 990 “

DRILLING RECORD:

20 Sandy clay

90 Muddy shale

140 Blue shale

142 Hard rock shell

160 Blue sand

160-10 Hard rock shell

243 Tough Blue shale

244 Hard rock shale

292 Gumbo

294 Hard lime rock, rough hard drilling

310 Tough blue shale

311 Rock Shell

321 Gumbo

321-8 rock shell

335 Gumbo

336 Rock Shell

900 Tough Blue Shale

908 Sand Rock, Good Gas Showing

971 Gumbo

975 Chalk Rock

990-6 Tough blue shale.

REMARKS: Set 8 in. casing at above depth top of Vivian Gas Sand, well drilled to 1004-6 brought in at that

(Testimony of Walter George)

depth, but only showed for a four million foot well. Well killed and drilled to 1026-6, well again brought in and showed a pressure of 450 lbs. and an estimated volume capacity of 65 million Cu. Ft. per 24 hours.

The Busch Everett Co.—Owners
McCann & Harper—Contractors.

A. L. PITTS WELL NO. 2

Located SE corner of NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 31, Township 22, Range 15, in Caddo Parish La.

Commenced Drilling Feb. 12, 1909; completed Feb. 25, 1909.

CASING RECORD:

8 in. casing 343 ft. 3 in
6 “ “ 1062 “ 11 “

DRILLING RECORD:

20 Sandy Clay
192 White Water Sand, several thin lignite coal stratas
192-6 Sand Rock Shell
210 Blue Sandy Shale
275 Blue Sandy Shale on top, then blue sand
343-3 Blue muddy shale many thin lignite coal stratas
344-6 Hard gray sandy shell
413 Blue muddy shale
414 Very hard sand rock shell
470 Blue muddy shale
471 Very hard sandy rock shell
476 Blue shale
477 Very hard gray rock Iron & Sulphur, Took 10 Hrs.
to drill through
566 Blue muddy shale, few scattered boulders

(Testimony of Walter George)

566-6 Sand rock shell

744 Very dark flaky shale, many stratas & scattered boulders

744-6 Hard sand rock shell

953 Dark hard flakey shale, few boulders

955-6 Soft sand rock, gas

982 Gumbo or tough flue shale

984 Soft sand rock

1062 Gumbo or tough blue shale, an occasional boulder

1602-11 Vivian gas sand

1079-11 Gas sand, big gas showing

1081-11 Hard Kaolin sand & chalk rock shell

1082-7 Vivian gas sand.

REMARKS: Well was baled in at the above depth and showed a pressure of 456 pounds and a volume capacity of fifty million cubic feet of upward, and is one of the great wells of the Northwest Louisiana Field, which has the record of the worlds greatest gas field.

The Busch Everett Co.—Owners
McCann & Harper—Contractors.

MRS. E. C. CHRISTIAN WELL NO. 1.

Located in center of NW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 6, Township 22, Range 15, in Caddo Parish, Louisiana. Commenced drilling Mar. 19, 1909—Completed April 14, 1909.

CASING RECORD

8 in. casing 344 ft.

6 “ “ 1060 “.

DRILLING RECORD:

40 Red sand

78 White water sand

(Testimony of Walter George)

- 82 Gravely water sand
- 104 Yellow sand
- 115 Blue sand
- 119 Lignite & Wood
- 136 Blue sand
- 136-8 Rock Shell
- 328 Blue packed sand
- 329 Rock shell
- 344 Muddy blue shales
- 345 Rock Shell hard
- 350 Muddy blue shale
- 350-8 Hard rock shell
- 372 blue shale
- 373 Rock shell, hard flinty
- 379 Muddy blue shale
- 379-8 Flinty rock shell
- 820 Blue shale & Scattered boulders
- 821 Flinty rock shell, hard
- 890 Blue shale
- 891 Sand rock soft
- 904 Tough blue shale
- 904-8 Sand rock soft.
- 910 Tough blue shale
- 911 Sand rock soft
- 974 Tough blue shale
- 979 Sand rock soft
- 1050 Tough blue shales
- 1055 Sand rock soft
- 1060 Soft loose Blake shale, Good Gas, Top of Vivian Gas Sand
- 1081-10 Vivian Gas Sand

(Testimony of Walter George)

REMARKS: Good gas showing, baled well in at the above depth and after running the baler but four times, the well came on and is good for forty million cubic feet of gas per day, and a rock pressure of 456 pounds, instantaneous.

Caddo Gas & Oil Co.—Owners.

McCann & Harper—Contractors.

THE WITNESS: As far as I know Mr. Greer is not Mr. Crawford's partner. He lives in town. J. B. Greer is all the name I know of. He has no other name under which he does business. He is a drilling contractor. He has been here a long time, I don't know just how long he has been in business for himself, about eight or ten years, I guess. He came here in 1909, or probably the latter part of 1908, as well as I remember.

Q Now, it states in your statement, in this Exhibit 1, that is the newspaper article, that you were the first to put this system into practice; what did you mean by that?

A Well, I don't know just what he has got in there. I gave him no written statement at all; I only had a conversation with him. I read it after it was published. As far as I know at that time the first well I ever heard of being cemented, bottom casing being cemented, was the Broussard No. 1. This article was published in the leading newspaper here in Shreveport, the Sunday edition. That was shortly subsequent to my receiving my notice from Mr. Halliburton of the infringement.

I think it was on the job there that Mr. McCann explained his idea to me, on the Broussard No. 1. That is the first well I ever cemented in my life, that I first put

(Testimony of Walter George)

this system into use. The casing I cemented on that well was 6-inch. The depth of the well at the point it was cemented was 2200 feet or thereabouts; I don't know the exact depth. It was an oil well. Prior to that time I had tried some cement around some blow-outs. The well was blowing out and we poured it around the casing. However, we didn't have much success with it. I have done that on a well known as the Gilbert well, in 1907 or 1906, I am not sure which. This Broussard well was the first well I ever put any cement to the bottom of the casing. I did not have any success with cementing the casing as I have testified by pouring it on the outside. I tried that on just the one well. I can't say what other parties outside of McCann and Harper I disclosed this system, which is referred to in this article, to, outside of those employed by McCann & Harper; that has been a good long time ago; but we all talked it over, I know, because we had done something that hadn't been done before. By we I mean the drillers and the others in the field. I can't remember just the ones. I can't remember any of them. I never operated this Broussard system for anybody else, and I never helped anybody else operate it.

Q In that Broussard system you had a 6-inch casing about 2200 feet in length and what was the use—what was the size of your inner pipe?

A We set some 10-inch, some 8-inch, and some 6-inch. We cemented the 10-inch, but not exactly as before described. We siphoned that down from the outside instead of the inside, however we didn't get down very far. I had never done that before. I have done it since on different wells. I cemented a number of wells after the

(Testimony of Walter George)

Broussard well; I cemented the Posey well and I siphoned in some by pouring the cement down the outside and siphoning up the inside. However, we got away from that system pretty soon, only a few wells we tried to siphon that way. I don't remember exactly, to tell you the truth, whether we poured it from the outside or the inside of the Posey well. I tried to siphon down the outside on the Jolley lease, on No. 1—in fact I think all of the Jolly wells were cemented in some form or another. I don't know exactly which way they were cemented. 1 and 2 I think were siphoned down—No. 1 was siphoned from the outside. We didn't do anything with the 8-inch; we didn't cement that. The 6-inch was cemented at 2200 feet, approximately, and siphoned through the drill pipe. The drill pipe was a four-inch drill. Approximately 50 bags, 45 or 50, of cement were used. I remember using in the neighborhood of 45 or 50. That was not the same amount that was used on practically every one of these jobs; used more on some and less on some. I remember one well we put as high as 300 sacks. That was the Jolly 1, I think, in May or June, 1909. We did not siphon 300 sacks down the outside; that was the bottom string of casing I am talking about we put the 300 bags in. Now, in using all of that cement there was quite a bit of it blew out on us and the well had a lot of gas and surface sand, and there was 300 sacks poured out and used. Whether all of it stayed in there I don't think I could tell.

Mr. McCann was the man who mentioned to me the idea of cementing by introducing the cement in some manner so that it passed down to the bottom of the casing

(Testimony of Walter George)

and then up on the outside. And it was pursuant to his suggestion that it was done for the first time.

Q Now, in this cementing by siphoning down the outside, that was in an effort to prevent gas blow-outs, wasn't it?

A That was only used in 150 to 300 feet of 10-inch casing that we set. It was to prevent gas blowouts.

Q The first suggestion of cementing the casing or introducing cement down on the inside to the bottom casing and up around the outside for the purpose of shutting off water was the invention of Mr. McCann to which you referred?

A No, sir. It was the suggestion of Mr. McCann, but it wasn't to cut off water; it was to hold either water or gas; it was the first time it was ever suggested to me. The first time I knew about it was when I used it following Mr. McCann's suggestion. After I used that suggestion on Broussard No. 1, I did not use that system on all of the wells that McCann & Harper drilled from then on until I left the company.

Q Well, I am referring particularly now to the idea of introducing the cement to the bottom of the casing and then forcing the cement up on the outside around the lower end of the casing.

A I never drilled a well after that that wasn't cemented—I never drilled a well as long as I was in their employ that wasn't cemented. I don't mean cemented by siphoning down the outside. I never siphoned it down the outside for the bottom string; I have never put in any cement for any bottom string on the outside; that was the surface casing. I don't suppose that system was adopted

(Testimony of Walter George)

by everybody that was drilling wells in that field from that day on. It was finally generally adopted. About 1910 I don't think there was a well drilled in the field that wasn't cemented. Some of them were skeptical at first about the cement setting. They didn't take it up until it had been proven. As far as I know it is correct that by 1910 practically every well that was drilled in that field was cemented by introducing the cement down the casing on the inside and up on the outside from the bottom. The general conditions were they cemented the casing. I will add there that all of the wells that we finished there were cemented, if there wasn't craters at the heads. I refer to the entire Caddo field, and includes Vivian and Houston and all of these other places in that field where wells were drilled.

On this Broussard well, this method of cementing that 6-inch casing, during that process we have our 4-inch drill pipe in the 6-inch casing, during the time we were lowering the drill pipe into the casing was setting on bottom. The pipe we lowered the drill pipe into was near the bottom. The casing was full of liquid, and that left the drill pipe full of fluid. We would run in the bottom and pull back up until we got enough displacement to where we could put the cement in the drill stem. We pulled it back off of the bottom; pulled the drill pipe off the bottom. That leaves some distance of the drill pipe above the top of the well; part of the drill stem in the top of the well would have no water in it, and we filled that part with cement. It was mixed. In that well we had some gravel and sand too. I don't know in what proportions; I don't remember that.

(Testimony of Walter George)

After we got that cement in the top poured in the drill pipe, then we put the fluid back on top of the cement and the cement would siphon down, leaving this upper portion of the drill pipe in which we placed cement still up above the top of the casing. We wouldn't lower the entire drill pipe into the well. By siphon down I mean the cement is heavier than the fluid in the hole, and it would start going down, and then we put the fluid back on top of this cement and it would go to the bottom. The fluid ahead of the cement in the drill pipe would pass out between the drill stem and the 6-inch casing. We would leave our casing landed during that siphoning operation, and we would leave the inside way at the top between the casing and the drill stem open so that the fluid could run out there.

Q Then after you had completed—I mean after that siphoning had gone on as long as it would how did you know that it had—by the water stopping or the fluid or mud and water at the top stopping or terminating, if the cement had reached the bottom?

A Yes, sir. And we just let it stand there until that flow stopped. I don't think I used any sacks in that Broussard No. 1 at all.

After the siphoning effect stopped we figured that our cement was in the bottom of the hole, then we would pull the drill stem out as quick as we could and put in the swivel on top of the 6-inch and back it up off the bottom and pump it for a short while until—we could only guess whether the cement was up behind the casing. We would pump by putting our swivel on top of the 6-inch; we would lift our 6-inch up. We would lift the drill stem

(Testimony of Walter George)

up, put the swivel on top of the 6-inch, and let the 6-inch back to the bottom, and let it pump sufficiently long enough to put cement behind the casing and set the casing back on the bottom. We just estimated how long we would pump on that well.

To my knowledge, the method I have just described was not used on any other wells. We put some sacks there, some loose sacks we brought there, or sacks of cement we put in them after that.

Q What was the next well you cemented by this method, and by this method I refer to this method of cementing down from the bottom of the casing up on the outside of the casing and in that I am totally disregarding this blow-out proposition?

A The next well I drilled was the Posey well No. 1, didn't set anything but surface casing there. The next one I drilled was Childs No. 1 and we used that system there with the exception we put some sacks in there to indicate when the cement was behind the casing. As to how I know outside of my recollection that it was that particular well we used these sacks, I remember we decided it was too much guesswork without something in there to indicate when it reached the bottom, when it hit the bottom, when the cement was all behind the casing. We had to have some kind of an indicator to denote that. This idea, that first method, the Broussard method, was Mr. McCann's. I don't know whether it was my suggestion to put the sacks in, or Mr. McCann's or some of the boys drilling on the rig. Up to that point I think it was the same operation; might not have been exactly the same, but practically the same systems. I can remember noth-

(Testimony of Walter George)

ing different. We would put on top the cement at the top of the drill pipe before we started, and put the fluid in on top of the cement, and then we would put in a sack. I don't think it was one sack, and I don't think it was a dozen; probably two or three; I cannot say definitely. They were cement sacks, cut them up and cut the seams out of them and put them in; roll them up and put them in. Not necessarily roll them all up together. On the Childs No. 1 well we cut the seams out of them and put them in, as well as I remember, one at a time; folded or rolled. I don't remember whether they were folded at all; just rolled I think. None of them formed a packing in the drill pipe; they passed right on through. Then we put in our fluid on top of this, and started siphoning just as before. That was in the Childs No. 1 well. That was McCann & Harper doing the job on contract. We contracted that well for B. G. Dawes and associates. I was present at the operation myself. I don't remember whether I put the sacks in or not, but they were put in according to my instructions. Harmon Mahaffey and Fred Kyle and Lem Pyle were present. There were some others around there; Mr. McCann I am sure was there. I don't think Mr. Harper was there; I am not sure. Several bystanders, I don't remember who they were, were there, and Mr. Childs was there; I am almost sure he was there; I am not positive, though, but it was being drilled on his farm back of his house, and he stayed with us pretty regular during the whole operation. My recollection that he was there is from the fact of the location of the well rather than actual recollection of his being there at the time.

(Testimony of Walter George)

O have no record of the Childs well in my possession right now, by which I can fix any of these facts I am testifying about; I mean by "right now" I haven't any in my possession. I haven't seen any since the originals. I don't know where the original is, definitely. I refuse to answer the question where I think they are. Mr. Harper told me where he thought it was. That is the only information I have any knowledge of, any record.

That method was not known as the Child's method; it was known as the siphon method. That system, with sacks being employed, was used in the Pitts No. 1 well, and Pitts No. 2. I don't call to mind any other. Probably we used that system in that Jolly 1. The same crew was at the Pitts No. 1, as well as I remember. Pitts No. 2 had practically the same crew all the way through there. I can't remember definitely anybody else that was present at these particular wells. On Jolly No. 1 Mahaffey was present, and Mr. McCann was present, and I think Dougherty was present; I am not positive. We had a strike on that well before it was cemented, and several of these boys quit, so I can't remember definitely who was there. These are the only ones I would absolutely state right now were present on Jolly No. 1.

The Child's, and the two Pitt wells and the Bell well was cemented in the same system, with the sacks. Kyle, Mahaffey and Tyler were at the Bell well; Dougherty wasn't on that job. I am not positive that Mr. McCann was on that job. The Child's Pitt No. 1, Pitt No. 2 and Jolly No. 1 and the Bell well were the only wells I know of being cemented by that system, that is, this system

(Testimony of Walter George)

which differed from the other one only by the use of sacks.

Harper was present at the Christian well. I wouldn't be positive about Harper being present at any of these other wells. He was looking after some other rigs then, and I wouldn't be positive about that. At the Christian well there was Harper, Mahaffey, Tyler, and a fellow by the name of Crawford. That is not Slim Crawford. There might have been some others, but I don't remember just now. With this Christian well, we first introduced our pipe that we wanted to cement; it was a 6-inch pipe. The depth was approximately 900 feet; I don't know, it might have been a little more or a little less. Our drill pipe was 4-inch. We did not follow the same procedure of landing our 6-inch and making displacement in our drill pipe. We used the wooden plug there. We started to use the same system and it blew out and stuck the casing, and then we used a wooden plug. I don't think we got as far along in the process as using the fluid. When I say it blew out I mean there was enough gas there to blow the bailer out and stuck our casing. Then we got returns and put our swivel on the 6-inch, or rather put the swivel on the 6-inch, if you want to call it that way, and then got returns, cleaned the well, and then got returns, and after we cut the well dead we cemented it with a wooden plug. Our casing was something like 4 or probably 6 feet off bottom; might have been higher than that; I don't remember exactly the depth that this was off the bottom and stuck. I don't remember just what stage in our cementing operation with this Child's method we were in just at the moment the well blew out.

(Testimony of Walter George)

When it began to try to blow out and blew the drill stem out of the hole, I don't remember just the stage it was. We had started the drill stem in, and it blew the drill stem out. It blew out and blowed the casing up. It didn't fix right at first, but it was blowing out, and we was working in pulling it and at the time it was blowing out our casing got stuck in the bottom. We were trying to cement it just like we had cemented other wells before that. I don't remember who was present when the blow-out occurred. The crew was there. I don't think Mr. Harper was there when the drill stem blew out. He got on the job pretty quick after it blew out and he found out it had blown out. After we got the well killed we cemented it, with a wooden plug. We carried our casing in there holding up off bottom. The hole was full of fluid. As soon as we got it clear we made enough displacement in it to get the cement in there. We made the displacement because we had to have room to put the cement. After we got our displacement we put the cement in there. Then we put the plug on top. The plug was a pine pole cut out with an ax, something like five inches, with some sacks or some wrappers nailed on top; might have been both sacks and wrappers, I don't remember. Some of the crew made that. I don't remember just who. Harper thought about the plug. I don't remember whether I had ever heard of it before or not. I don't remember the exact length of that plug. It was trimmed enough to go inside freely down through the 6-inch, and then we had to cut it and tried to make it the length of the hole, the open hole we had below the 6-inch, just so it would pass low enough below the 6-inch so the cement would stop.

(Testimony of Walter George)

In other words, the plug was about the length of the amount of hole we had under the 6-inch. We were using that as an indicator to tell us when the cement was behind the casing. We put the cement sacks on top so it would make the plug—so it would stop the pump when it hit the bottom.

Q The sacks on top formed such a plug as to convert it into a complete barrier between the fluid above it and the cement below it, is that correct?

A Well, you can call it a barrier if you want to. It was a plug to stop the pump when it hit the bottom.

After we got that plug to the top we put the swivel on and pumped it down. I don't remember just whose idea it was. It was Mr. Harper's idea to put the wooden plug in there, and it didn't take much idea to pump it down after we got it in there. That is what it was made for.

The next well I saw that system used on was Jolly 2. It wasn't done exactly the same way; it wasn't put in there; we had the pipe stuck in that job. It was not exactly the same outside of that. We had a plug, a machine turned plug. It was the same principle with both Jolly No. 2 and the Christian. We used the plug on top of the cement and pumped it down the same way. I don't remember any other difference. I don't remember exactly how long the plug was on the Jolly No. 2; something like four or five feet. It was brought out there, and we decided it was too long and cut part of it off. It was four or five feet, maybe five or six feet, far enough to hit bottom and prevent it from going out of the casing. We then picked the casing up to where the plug sunk past it and pumped it from the bottom, and the bottom

(Testimony of Walter George)
of the plug struck the bottom of the well. That was on Jolly No. 2.

We drilled some wells after we drilled Jolly No. 2; we drilled—spent part of my time on two other wells which I told you I didn't remember the names of, just what they were. I don't remember when they were cemented. There was an intervening time in there; I worked back and forth between them. They were both cemented after the Jolly No. 2. On Jolly No. 2 the completion of the cement job was not the completion of the well; it was drilled in afterwards.

After this Christian Well and Jolly No. 2, which are the two wells I have so far stated were cemented with this plug method, with the exception of the Bell well and the Child's 1—I mean the Jolly 1, as I remember, we used the plug system on all the rest of them. I don't know that it would be McCann's instructions. He was on the Jolly 1 and helped do that job, and he was on the Jolly 2. We didn't use the plug on the Jolly 1 but we used it on the Jolly 2, and after the Jolly 2 was cemented with the plug, I think pretty much all of the other wells were cemented with wooden plugs.

Q Now, let's place all of the wells that you know about being cemented with the plug after that. What was the next well after Jolly 2?

A Well, there was two I told you about, that Worley well and the other one I don't know the name of; we only worked part of the time, just set them; didn't complete them; and then I drilled three, four, five, six and number seven I didn't set the casing on that job, I only drilled it in; that is Jolly 7. No. 3 came in that fall; I don't

(Testimony of Walter George)

remember just what time they got on No. 3. No. 4 was during the winter. That is as close as I can come to it. They ran right along; No. 3 was drilled along in November or December, and No. 5 came on later in the year or the next year, the first part. I was on these jobs until the spring or summer of 1910. I don't remember exactly when they was drilled right now.

I don't know just what month they cemented all the other wells, but as far as I know they were all cemented by this same method of Jolly No. 2. After I left McCann & Harper I was looking after some drilling rigs for the Wolfe Drilling Company; I didn't run a rig any more. I didn't drill any more.

By 1910 this method had practically become universal in the Caddo field, that is, the plug method; there were some of them still using that—I didn't see them using them, but I heard them talking about it, but they was all cementing by that method. I didn't see anybody use the sacks. Everybody I saw used the plugs. As far as I know they all used the plug system.

With this plug system such as was used on the Jolly Well No. 2 we had the casing on bottom when we put the cement into the casings. We would pick the casing up just high enough to get free circulation. Sometimes we had to work quite a bit to get circulation. We had our cement in it before we established this circulation. We would establish circulation after we got the cement in—we had circulation when we started it in there. We put our cement in and then lifted it off bottom, then we pumped our cement down to the bottom, and then after the cement was on the bottom we lowered our sacks; in

(Testimony of Walter George)

that respect it differed from the siphoning method. We raised our casing after our cement got to the bottom with the siphoning method. With the plug method I raised the casing before the cement got down, and when the cement got down we lowered the casing. After the cement got to the bottom we left it on the bottom, we didn't raise it any more.

The Jolly well was drilled for the Busch Everett Company, and I don't know who the Christian well was drilled for. I think it changed hands along about the time the well was started. I am not positive who that was drilled for. The Busch-Everett Company had different men out there in charge of their operations at different times. I know John Russell. Russell hadn't come at the time of these Jolly wells. Charlie Doolittle came there when they were being drilled, but he wasn't there when the first one was being drilled—the first one, 1 and 2—really I don't think he came up there until about 4 and 5 was drilled, until about that time. I wouldn't say that he saw 4 and 5 cemented. I don't remember whether he did or not. The first time I remember Doolittle coming on this job was when I went back from the Jolly wells to Pitt No. 3. Pitt No. 3 is one I didn't name a while ago. That was drilled in the spring of 1910; as well as I remember it was drilled in May or June—maybe April or May, 1910. That was cemented with the plug system, practically the same as this Jolly well. I don't know whether Doolittle was there when I cemented it. He was drunk quite a bit. He might have seen it cemented and he might not, but he wasn't looking after the drilling; he was looking after the production. They really didn't have anyone looking after

(Testimony of Walter George)

the drilling. McCann & Harper looked after the drilling of that well, and Busch-Everett never put an active man in there until Doolittle came in there. Mahaffey was with me on that Pitt 3 well, and this fellow Burroughs that I spoke of as being dead was with me, and I don't remember just what other men were with me. I don't remember if Harper was there. He wasn't on Jolly No. 2. McCann was on Jolly No. 2. McCann was not on Pitt No. 3. When we were drilling Pitt No. 3 the Stacey-Landing district jumped up and we changed quite a few men; I don't remember who I had there. I drilled Child's No. 12 at Stacy Landing.

I knew Jim Ribb. I never met Jim Ribb to know him until several years after that. I had heard of him and knew there was such a man, but never met him until during the boom south of Mooringsport about—must have been about 1915 or '16. As well as I remember that is the first time I ever met Jim Ribb.

I don't remember just what well Edwards No. 1 was that was drilled for Busch-Everett by McCann & Harper. At that time there were several leases changed hands and the names changed also. I remember the Barr farm of the Sun Company. The first well on that lease was drilled in the spring or summer of 1909. I don't know about the numbers of the wells; I didn't work on them. I suppose the first well on a lease would be No. 1; but if I remember correctly the Sun Company didn't number their wells 1, 2 and 3 on different tracts; they had a continuous line of numbers, if I remember correctly. I couldn't swear who drilled the first well on the Barr lease. Jim Clark was in charge of it. I was not there when it was

(Testimony of Walter George)

being drilled. I heard them say or talking about cementing; I couldn't swear to whether it was cemented or not; I didn't work there. I know it was drilled in the summer or spring of 1909, because I was passing to and from my work at Vivian at the time. I don't know just what date it was drilled. I don't know whether it was before or after Jolly No. 2. I wouldn't try to fix any date for any of those wells, because I don't know.

Q You don't know although you went by it every day at the same time you were drilling all these other wells?

A Yes, I drove by there for several months. I don't suppose they were months in drilling that well. Right across the fence from it McCann & Harper drilled a well for the Busch-Everett people. I think that was No. 3; I think it was across the fence from some of these wells. No. 3 Pitt. There were some rigs running on the Barr farm at the time No. 3 Pitt was being drilled, but I don't think it was a direct offset. I went on the job for McCann & Harper across the fence after it was started, and set the casing and moved away, and it wasn't drilled in at all. In fact, I don't think the well was ever drilled in. I won't say that this well wasn't shot. I will state I didn't use it and don't know anything about it. The casing was cemented. I was there. That was on Pitt No. 3. Mr. Powell was around there; I don't know whether he was right on the job or not. He was superintendent of construction. I don't think Mr. Russell was there. I don't remember him being there; I don't know that he wasn't there, but I wouldn't swear either one. Just at the time of the cementing I don't

(Testimony of Walter George)

remember whether Mr. Russell or Mr. Powell, either or both of them, were there or not. Powell was constructing some pits just below the well, figuring on it being a big oil well. The reason the well wasn't drilled in, the Busch-Everett people were in the gas business, and they got out some kind of an injunction against them drilling these wells into oil and water, and it was generally understood that that was why the well wasn't drilled in. If it was ever drilled in later I didn't know about it. That well was cemented by practically the same method used in this Jolly well. If there was any difference in one the plug was made by hand and the other turned; that was the only difference.

The next well I cemented after Pitt No. 3 was Styles No. 12. I was drilling it for McCann & Harper, who were contracting for Benjamin Trees, who afterwards sold to the Standard. That was in June or July; I was there in June or July, up until July in 1910. I don't know whether Mr. Harper was present when that well was cemented or not. The same method was used. I don't know of a well being cemented by any other method than that after that date unless there was something wrong with the casing. I never heard of any other theory of cementing wells after that date.

After the Styles well I didn't drill any more wells then for over a year, probably a year and a half or two years. I don't remember just what well I drilled next; I would have to think a moment. The next well I drilled was in Mexico. I didn't run a drilling rig anymore in Louisiana after Styles No. 12 except—I don't remember cementing any more until I began working

(Testimony of Walter George)

for myself. That was during the Pine Island boom in 1917, I believe. In the meantime I probably had seen wells cemented, but I wasn't in direct charge of it, so I don't remember just what wells they were or when.

I never have figured out to this day just why that bottom plug was used by anybody on these later wells. I don't remember who told me to use it. As far as I know it was useless after one plug had been used. Although the one plug method worked successfully. I used the second plug; I cannot remember why or at whose direction or whose idea it was.

I left the Texas field in 1904. There had been no wells cemented there. I was in Jennings about thirty-five days before I came to Caddo. From 1904 to 1909 I was in the Caddo field. As far as I know, there was no cementing by any of these other companies until I cemented the Broussard No. 1. I never used the dump bailer method; I might have heard of it, but I don't remember; I never used it. The various methods of cementing I have explained are the only ones I know about except the Halliburton high pressure pump they had there in the Arkansas field. I know nothing about the process used by Halliburton at Corsicana. We got water in the wells in the Texas fields, and if they had known how to handle it and they could have had that cementing operation it would have been a valuable thing for the field.

Q And if it had been known they would undoubtedly have adopted it, would they not?

MR. WESTALL: That is objected to as incompetent, irrelevant and immaterial, and not proper cross-examination.

(Testimony of Walter George)

A I don't know.

There was the same desirability for such a system in Louisiana. After this system of cementing from the bottom around the lower end was tried out it became universal. With the drill pipe method I considered it was taking too much chance leaving that casing set on the bottom. It was too great a chance to take on it sticking. In other words, we had to leave it there during the time we were putting our drill pipe—put our cement in and siphoning it down and watering our drill pipe; it might stick at that time. It would not have required taking such chance if the plug system was known; I don't think it was as good as the plug system. As far as I know, McCann & Harper discarded the drill pipe system when the plug system became known; might have used it in other places, I don't know.

I would think that plug system of introducing the cement directly to the well casing has been a great benefit to the oil industry; in dollars and cents I couldn't say. *I* lengthens the life of the well; it insures the seat. I have heard of the use of the method of drawing the pipe into a tight hole; I don't know when that was last used in Louisiana.

ON

REDIRECT EXAMINATION

Mr. George testifies:

I don't think there is any use of the second plug. The first plug was used so we could tell when our cement was behind the casing; when the cement was behind the casing we would know it was behind there. When the plug hit

(Testimony of Walter George)

the bottom and when it stopped the pump we knew it was on bottom and that the cement was behind the casing.

We have various depths of wells in this country. We have the Nacatosh sand, which runs anywhere from 800 feet to 1100 and 1200, and then we have what we call the chalk rock sand, which runs from 1300 to 1400 feet. Then we have the Caddo sand, the gas sand, the blossom sand, the biologists call it, around 2200 and 2300 feet, and then on Pine Island it runs around 2400 to 2500, and then we have gotten some wells over there that run 2900. I have never drilled one of the 2900-foot wells.

I have referred to the swivel on top of the 6-inch casing. I don't know what these fellows in California call it, but the swivel is used on the cable joint in rotating it; you gentlemen know what it is. It screws into the end of the pipe over the casing or the drill stem, and when they rotate it works on little brackets; it forms the loose passage of water from the pump from the pipe.

Q Now, in cementing these wells with the plug method in 1908 and 1909 or at any time, you mentioned you pumped the cement through that head, didn't you, into the casing?

MR. LYON: That is objected to as leading and suggestive, the witness having gone through the method used very carefully.

A Well, we didn't pump the cement through that swivel at all, just forced it into the casing, and after it was in the casing, then we put the swivel on and pumped the fluid through that casing. Our practice has been practically the same all along; there has been some few cases where it was pumped off. However, I never pumped

(Testimony of Walter George)

it off from the—In the use of the plug system at the present time, we don't usually pump the cement through the swivel; but as I stated, in some cases I have seen that method used, but I never used that system except on two or three times when I used Halliburton's outfit in Arkansas, that was when he was doing the work. I always poured it into the pipe of the 6-inch.

Q In preparing for cementing you pump the pressure fluid through the swivel and down into the casing up to the place outside of the casing—I should have stated, have you pumped fluid down through the casing and up outside of the casing, for the *purpos* of seeing that the place around the casing was free and clear?

MR. LYON: That is objected to as grossly leading and suggestive.

A I answered that once this morning. We always run the pump to see that there was free circulation around the casing before we endeavor to put the cement in. Of course we pump through the swivel in all cases of that kind. That was the procedure in the early days, when we first used this process, and has been the process ever since.

I don't remember ever using the process in which two blocks were used myself; I know of it being used. I might have used the two blocks, but I don't remember using the two blocks. After the first few wells cemented a system was worked out, and I never paid much attention after that because we just adopted it and kept at it. The method of cementing by use of one plug that I described pumped through the casing has been successful in most instances. I haven't heard of two plugs being

(Testimony of A. F. Powell)

used in years. I don't remember when I heard of the last two plugs being used unless it was in case of the casing getting stuck in the hole and then there would be an occasion for using the bottom plug.

Q I will ask you this question: Have you ever had any experience with cementing through the casing without the use of any plug?

MR. LYON: That is objected to as leading and suggestive, the witness having testified to every well that he cemented prior to 1910, and stated in detail how he did it. Now, for counsel to have him to attempt to vary the testimony or the methods he knew of is grossly leading and suggestive.

A I don't remember any well being cemented without some kind of plug since we began cementing, unless it was sacks or shale or something was used, since we first adopted the plug system.

Q That is, the sacks of shale being used as indicators?

A Something being used.

MR. LYON: The last question was answered before I had an opportunity to object. It is now objected to as being leading and suggestive.

Shreveport, June 30th, 1924. 10 o'clock a. m.

TESTIMONY OF A. F. POWELL, FOR DEFENDANTS.

A. F. POWELL,

called as a witness on behalf of Defendant, duly sworn, testifies:

(Testimony of A. F. Powell)

My name is A. F. Powell; I reside at Vivian, Louisiana, and I am in the real estate business at this time. I have lived at Vivian for 28 years. I was not interested in the oil business except in some property where I had a lease on it at one time, and I worked under a salary and helped get a field started up there for the Vivian Oil Company. The Vivian Oil Company at that time was operating right south of Vivian, say in about a mile or a mile and a half and then a little east. I leased the south half of the southwest quarter of Section 36, and then there was some fractions they leased adjacent to that; the southwest quarter of the southeast quarter of 36 bounded by the public road known as the Mooringsport public road. A well was afterwards drilled on that property. That was known as Powell No. 1 of the Vivian Oil Company. It was drilled in sometime in the month of March, 1909. I can't tell you, I don't remember the date of the starting or drilling operations, or the actual dates of the completion of the well. I gave you the approximate date according to my recollection. The only record of any kind that I know of that might inform me as to the date of the operations is our lease on that property, this specific property.

Q I hand you a certified copy of a lease covering certain property and will ask you if that is the property you have reference to.

MR. LYON: That is objected to as incompetent, not the proper method of proof.

A Well, the lease—I am satisfied this is a certified copy of it, I see it is certified here by the deputy. It was given in August, 1908. The date of the lease is the

(Testimony of A. F. Powell)

1st day of August, 1908. I see here where it is written but I couldn't give you the date offhand just from memory.

Q But with your memory refreshed by that date do you remember anything more definite as to about the time of the drilling of Powell No. 1?

MR. LYON: That question is objected to and motion is made to strike out the testimony of the witness heretofore given relative to the date and the document, as incompetent, irrelevant, immaterial, not the proper kind of proof, no foundation laid, and objection is made to the competency of the testimony of the witness being based upon a recollection refreshed by this document, no foundation being laid for the document.

A No, sir, nothing else.

Q This lease appears to be between A. F. Powell and H. A. Lehman. Who was Mr. Lehman?

MR. LYON: Objection is made to all questions referring to the document, on the ground that the document is not competent evidence, the authenticity of it not having been established or proven and no foundation laid.

MR. WESTALL: The purpose of the document is merely to fix the date or the approximate date of the operations on a certain well, and is merely part of the proof, it being intended later on to file it in evidence.

MR. LYON: The objection is repeated that the document has no standing as evidence, and cannot be referred to by the witness in his testimony, and that his testimony is incompetent for the reasons already stated.

THE WITNESS: Mr. Lehman was their lease man, which practically all of the leases were taken direct in

(Testimony of A. F. Powell)

his name, and I think you will find that Lehman transferred to the Vivian Oil Company.

MR. LYON: Motion is made to strike the testimony of the witness out upon each of the grounds stated in the previous objection.

Q BY MR. WESTALL: I notice on page 2, about the middle of the page, one of the considerations is "to begin the actual drilling of a well within three months from this date and to continue same with due diligence until a depth of 2500 feet is reached unless oil or gas is found in paying quantities at a less depth", which would seem to mean that a well must be begun three months after the first day of August, 1908, and prosecuted with due diligence thereafter until a depth of 2500 feet was reached. Can you state whether or not this agreement in the lease was complied with?

MR. LYON: That is objected to upon each of the grounds set forth in the foregoing objections, and also as leading and suggestive.

A Whether the lease was complied with in every respect?

Q No, the question is whether it was complied with as to the beginning of the drilling of a well within three months; whether or not they did begin drilling a well within three months after the date of that lease.

MR. LYON: Same objection.

A No, sir, they did not.

Q Do you know how long after that it was before they did begin drilling?

MR. LYON: Same objection.

A No, sir, not exactly. The date of March, 1909, as being when the well was drilled in is only just from

(Testimony of A. F. Powell)

memory, and I have got no definite thing to cause me to base that opinion upon.

MR. WESTALL: I offer in evidence the document referred to by the witness, namely, oil lease, dated August 1, 1908, between A. F. Powell and A. T. Lehman, as Defendant's Exhibit Powell-Lehman lease—you had better mark that Defendant's Exhibit No. 1 Powell Lehman lease.

MR. LYON: Objected to as incompetent, irrelevant, immaterial, no foundation laid and not the proper method of proof as well as not being properly proven itself.

(Document marked "Defendant's Exhibit No. 1 Powell-Lehman lease.")

THE WITNESS: Mr. Crawford was the man that was handling the machinery in the drilling of Powell No. 1 well. I don't remember his initials; he was one of those fellows they call by a nickname, they called him Slim mighty near all the time,—Slim Crawford. He lives in the city. I think he is in the drilling business, but I don't know exactly where you would find him. I know W. C. Wolfe. He has been a drilling contractor.

Q Was he connected in any way with the drilling of Powell No. 1, to your knowledge?

MR. LYON: Objected to as leading and suggestive.

A I don't know whether he was the contractor at the time or not.

Q BY MR. WESTALL: Is there any way you could verify that date of March, 1909, as the date the well was drilled in?

MR. LYON: That is objected to as incompetent, irrelevant, immaterial, not the proper method of proof, and

(Testimony of Harmon Mahaffey)

not calling for the testimony of the witness as to any material fact in the case.

A No, sir.

TESTIMONY OF HARMON MAHAFFEY, FOR DEFENDANT.

HARMON MAHAFFEY,

called on behalf of the Defendant, duly sworn, testifies:

My name is H. H. Mahaffey; I live at Bossier City, Louisiana. I am a well digger. I have been engaged in that occupation since 1907—now, wait a minute; since February 12, 1908. From the time I started until now I have been doing nothing but digging wells. I have been engaged in no other business. Oil wells and dry holes too sometimes.

Beginning from the time I have mentioned in 1908 and during the year 1909 I was employed by McCann & Harper; I was employed by the same firm until 1912, I believe. McCann & Harper were operators in the Caddo field up here. They did well contracting work, digging wells, oil wells and gas wells. Mr. Harper's first name was Hearne.

Q Now, did you have any experience with cementing wells during either the years 1908 and 1909 from the time you have mentioned?

MR. LYON: That is objected to as grossly leading and suggestive.

A I did. I was roughnecking for McCann & Harper, employed as a roughneck. I was supposed to do what I

(Testimony of Harmon Mahaffey)

was told to do, and they cemented some wells and I assisted them in cementing them. I know how some of the wells were cemented.

The first well I had any cementing experience on—I can't give you the name of the well, but it was a well known well in the country there—it was a crater for a long time and blew out, and that was the first cement I ever handled on a job. Everybody knows where it is, but I don't know whose it is, but we had a blowout there and lost it. It was about a half a mile—between a half and a mile east of the track this side of Oil City. We lost that well and dug around the casing and poured cement all around the casing, and tried to cement the surface by digging around it and pouring cement all around it, and of course when we done that the cement held all right, but the pressure come up around the outside of it and we never could save that well. That is the first cementing I ever saw done. I know about when that was, and that is about all. That was in 1908; that is about as close as I can get to it.

I believe the next well was the Broussard well on the lake back of Oil City, we cemented that well both surface and inside casing. That hole was something like 2200 feet, the inside casing, and approximately 200 feet of the surface casing, and we siphoned the cement down on the outside of the surface casing, and also siphoned it down on the inside of the inside casing.

The next well I was on we went to Vivian. That well was the Posey well. We didn't set any surface on the Posey well—I mean we didn't set any inside casing; we

(Testimony of Harmon Mahaffey)

set surface and cemented the surface and siphoned it down on the outside.

After the Posey well the next well I had experience in cementing wells was the Childs No. 1. The same method was used as on the Broussard. We siphoned down on the inside.

Q Please describe now, if you can, this siphon method for the lower casing on Childs No. 1 was done, that is, if you have a distinct recollection of it.

A Well, we run the four inch into the hole—we didn't have any tool joints in those days like we have got now, we didn't have any joints then, but we run an open ended 4-inch inside of the casing. That 4-inch open ended pipe was used to siphon the cement through. That 4-inch performed the same function that it has now, with the exception that the tool joint has got a small hole in it, and you couldn't very well siphon anything through it, especially a sack or anything like that.

Q Now, you have mentioned a sack. Were sacks used in that siphon method sometimes?

A Yes, sir, yes, sir, we—

MR. LYON: (Interrupting) I object to that as leading and suggestive.

THE WITNESS: Sacks were used for a plug to tell us as near as it could when the cement was around the bottom of the 6-inch—when the cement went around the bottom of the 6-inch and indicated when the cement was around six. That indicated when the cement was around the 6-inch casing by causing the pump to either stop or labor.

(Testimony of Harmon Mahaffey)

Q Now, please describe how you used the sack, how it was prepared and where it was put with reference to the cement?

A Well, the 4-inch was hung off the bottom something like a joint or a joint and a half; that would be 20 or 30 feet. The cement was poured on the inside of the four, and then the sacks was put on top of the cement, and then the rotary mud was put on top of the sacks and was continually poured on top of the sacks until it stopped siphoning, which indicated the cement had reached the bottom and had been forced back up; and then the 4-inch was pulled out of the hole, and the pump was put on the inside casing, the last casing, and pumped until we thought it was around all of it or at least we noticed some change in the laboring of the pump.

Q And what did you figure out had caused that change in the laboring of the pump?

MR. LYON: That is objected to as incompetent, not calling for a statement of facts, the mental condition of the witness not being evidence.

A The sacks striking the closed point between the bottom of the 6-inch and the bottom of the hole, which would plug up the opening and show that the cement had passed around.

Q BY MR. WESTALL: Now, where was the bottom of the casing with respect to the bottom of the hole when you were pumping this cement down?

A Just as close to the bottom—

MR. LYON: That is objected to as assuming a fact not testified to by the witness, and in fact assuming a fact directly contradicted by the testimony of the witness.

(Testimony of Harmon Mahaffey)

A It was just as close to the bottom as we could get the cement to pass out under the bottom of the casing, and we tried to have it at a point where the sack would not pass out through the opening. The sack we used was a cement sack. It was wet and softened up as much as possible so it would not wad up on us, and it was four or five or six or two or three anyway, but not one. After the pump began to labor or had stalled and we knew the cement was back of the casing, we set the casing down on the bottom and quit. I believe we set it down on bottom, then left the pressure on, pumped pressure against it. We would leave the pressure on by closing the valve on the pump. A swivel connection was on top of the 6-inch casing at the time. This swivel connection was just a connection to hold the top of it together while you pumped; just to close off the top, so that the pressure could be left on.

Q Was that method of cementing through the drill stem or four inch pipe as you described it used much to your knowledge in 1908?

MR. LYON: That is objected to as leading and suggestive; you may ask the witness what he did after that with reference to cementing, without the necessity of suggesting to him conclusions of your own mind.

Q BY MR. WESTALL: Describe your experience in 1908 with the process that you have mentioned, that is, the use of cementing through drill pipe and with sacks as indicators.

MR. LYON: That is objected to as assuming a fact not testified to by the witness.

(Testimony of Harmon Mahaffey)

A I have already explained that, I thought. It was used on other wells. It was used in 1908, to my knowledge.

I have had other experiences with other processes besides that drill stem process. The other process was a plug instead of sacks. The drill stem method of using the drill stem for to siphon through was not used in the plug process. The first well I ever saw a plug used on was Christian No. 1. I don't remember the date, must have been along in March, because I know it was corn planting time, that is, a little corn was up at that time in 1908. That Christian well was cemented in March, 1908. There was a displacement made at the top of the casing sufficient to hold the quantity of cement that was going to be put in the well, and then the plug was placed on top of the cement and to my remembrance there was a gasket rubber nailed on top of the plug, and then the plug was pumped down until the hole was filled by lacking what the cement lacked filling it up, and then the plug was pumped down until it struck bottom and shut the pump off, and then the pressure was left on the well as the rest was, with a tight head on. After the cement was put in there there was some little distance between the top of the cement and the top of the hole and it was finally filled with mud up to the top of the hole before the pump was put on, and then the plug was pumped down. That is what I intended to say. I guess you got what I said all right, but I intended to say it the other way.

I went to work for Harper February 12, 1908. After I went to work for McCann & Harper the first well I worked on I worked four or five days on Richardson Well

(Testimony of Harmon Mahaffey)

No. 1, I believe it was, I forget the exact number of it, but I think that is correct. It was from February to March after I went to work for McCann & Harper that I did this cementing on this Christian No. 1 well. Let's see about that—that was February 12th, 1908—yes, February 12th, 1908, until the Christian well was drilled—February 12, 1908 until March, 1909.

Q Well, a little while ago I understood you to say that the Christian well was drilled, according to your recollection, in March, 1908, and now you say 1909.

A Well, I meant 1909. I withdraw that first statement then, if I said that. The plug we used on Christian No. 1 Well was made out of a pine sapling six or eight inches in diameter to fit the casing it was to go in. I made it, myself. The whole crew was present when I made it. The crew was Fred Kyle, Johnnie Burrows—he is dead now; and there was a fellow named Crawford, I don't know his initials, and I believe Lem Pyle—I am not positive about Lem Pyle; I wouldn't say, I am not positive about Lem Pyle. He was a roughneck. He is now in Cotton Valley. There was Fred Kyle and Crawford and Lem Pyle and Walter George, he was the driller, and another fellow there—I be dogged if I can remember his name. Let's see; there was Lem Pyle, Crawford—I believe that is all I can remember now. Have you got down every name I have given?

My remembrance is I put the plug in the casing. After that I cemented Jolly No. 2 by the plug process I have just described. I know that process is used at the present time in this field for cementing wells.

(Testimony of Harmon Mahaffey)

Q Is the process as used at the present time used for cementing substantially different from that you have described as having been used on Christian No. 1 and Jolly No. 1?

MR. LYON: That is objected to as calling for the conclusion of the witness.

A Well, technically there is no difference, that is, as to the process, but there is a little difference in the way we make the plug now and the way we made them then. We made a long plug that was a right smart trouble in drilling out, and now we make a right short plug and put a leg on it, to make it stand up off bottom.

ON

CROSS EXAMINATION

Mr. Mahaffey testifies:

I worked on wells between the Christian well and the Jolly No. 2 well; I worked on the Vivian Mercantile, Jolly No. 1 and another well southeast of the Jolly well a half mile, I don't remember the name of it, but it was southeast of Jolly No. 1. There was no blowout on Jolly No. 2 well before we tried this system I have described. There were no blowouts on the Bell well. There was a blowout on the Christian well.

Q Does this correctly describe what you did on the Christian well: "I had tried to cement the well with this siphoning system, and when we pulled the casing up it stuck and we couldn't move it and the well blew out on us before the cement was set. We had some gas above, you see, so we made a plug that would fill up the hole that was below the six-inch casing and we put the plug in and got our displacement by blowing it out with gas. We

(Testimony of Harmon Mahaffey)

got the displacement and cemented and put the plug in and put cement in on top of it and pumped it to the bottom. We could pump around the six-inch, but we couldn't just plug it up. By putting the plug at the bottom it filled the hole below and put it behind all of this six-inch casing."

MR. WESTALL: Now, I object to that question and I call counsel's attention to the fact that this testimony from which he is reading has not been checked nor read over.

MR. LYON: I object to counsel schooling the witness with reference to any testimony; I am not telling the witness that this is his testimony. I object to counsel interfering with the cross-examination of this witness.

MR. WESTALL: I object to the question as not proper cross-examination, as being too long to be understandable by the witness, as containing practically a number of questions in one; and I believe the question should be changed so that the witness can understand what it is, and inasmuch as the answer and description is quite long I believe the witness should have before him the answer so that he can read it over again.

MR. LYON: I object to putting anything before the witness. . . . I further call the Court's attention to counsel's attempt to instruct the witness and correct the witness and protect his record by suggesting to the witness that counsel objects to that particular description; and I submit to the Court that it is not proper for counsel to interrupt perfectly proper cross-examination in this way, but that the witness should be allowed to proceed unhampered and unprompted by counsel on cross-examina-

(Testimony of Harmon Mahaffey)

tion. This is perfectly proper cross-examination and counsel's attempted interference is grossly improper.

MR. WESTALL: The reason I object to the question is because there is an obvious mistake or rather a typographical error in the transcript from which counsel is reading.

MR. LYON: I again call the Court's attention to this unlawful interference on the part of counsel and his attempted prompting of the witness on a vital point which I consider totally destroys the value of the testimony on this point if permitted. I have no objection to the witness seeing the document, if he cares to.

THE WITNESS: I don't care anything about seeing the document or the testimony; just tell me what your question is. Now, what was your question?

(Question read.)

THE WITNESS: Put a plug in there and you say put the cement on top of it? That is not my remembrance of it. I remember there was a blow-out in that well.

Q And the blow-out was at the bottom of the well, and wasn't that plug used to fill out that blow-out hole at the bottom of the well so the cement could go around the bottom of the casing?

A No, sir. The plug was used to shut the pump off. I am sure of that. I don't believe I have talked to anyone in regard to that point on that well. I have talked to several about the Christian well and how it was cemented; several asked me how it was done. I talked to a big fellow by the name of Bob Gleason; he is a brother-in-law of mine. He had no interest in this matter. I believe that is all the men I have talked to about it and went into the

(Testimony of Harmon Mahaffey)

details about it with. I have talked to Mr. Walter George about testifying; he asked me to testify and to tell what I know. That is all. I never discussed the process of cementing with him. We discussed that there was a Christian well; everybody knew that. He asked me if I remembered when it was drilled; I told him it was March, 1909. I didn't discuss that date with anybody else. The best way I had of remembering it was the time of year on account of the farmers around there. I have worked in these oil fields from February 12, 1908, up until now, continuously on different wells throughout the field, this and other fields. I can remember approximately the time in which these other different wells I drilled were worked on; I think all of them. Mr. George asked me when I remembered we drilled it. I don't believe he said when he remembered.

I heard them say they had a copy of the log of the well, but I never read it and never saw it. They asked me if I could remember when it was, and I told them I thought I could and I told him to the best of my recollection when I thought it was, and they told me that was about right. They did not tell me what dates the log showed, not at any time. They told me the date—they told me about the date of Jolley 2. W. H. Harper, I believe, told me about that; Hearne Harper. I talked to him about this on Friday, I believe, sitting right in there. No one else was present. Mr. George was not there. I did see him that day up here. Mr. Harper said he had a copy of when the well was drilled. He asked me if I remembered when it was drilled offhand. I told him it was in the fall of 1909, the early fall, but the

(Testimony of Harmon Mahaffey)

date I didn't remember exactly; in fact I don't know the date exactly now. He told me he had the log. I don't know whether it was the original log or not; he didn't say as to that. I believe he told me he could get the original, and he had a copy. He didn't tell me where he could get it. The conversation I had I had it with Harper and had some little conversation with Walter George but neither one of them seemed to be able to tell me anymore than I knew. They discussed it with me. The fact of the business I think I remembered more about it than they did. Walter George didn't say how well he could remember these things. Harper never said about his recollection.

Q Then how do you know you could remember it better than they could?

A Well, they didn't seem to remember anything better than I did, and they didn't remember no dates; didn't remember any better than I did. Walter said he didn't remember the date—didn't remember the exact date, but he had a copy of the log. I don't know whether that was what he was relying on.

I have talked to Fred Kyle about this matter. I talked to him last night, I believe; I think so. He was over to my home to see me. He frequently calls on me. I believe he told me he didn't care much about it, it didn't seem to interest him any. He said that he didn't know that he was interested in this affair at all. He didn't care to bother himself about it. He didn't say anything about what he remembered about it. I never told him anything. That is the only conversation I had about it of any kind. I don't believe Kyle and I mentioned the

(Testimony of Harmon Mahaffey)

Christian well or the Jolly well. I don't remember whether we mentioned plugs at all. Mr. Kyle didn't come over to see me about this matter at all. He came over there for what he generally comes over there, he comes over to see me every once in a while and we sit down and talk as friends; he is a friend of mine. He asked me if I had testified here; I told him no, and I asked him if he had; he said no. I did not ask him if he was going to be a witness. After I told him I had not testified he never said anything. That was all that was said about the matter. We passed around the wine then and all had a drink. I don't think I talked to anyone else besides Kyle, Walter George and Hearne Harper. I don't know any reason why Kyle's recollection is not reliable at this time; I know no reason why it might not be reliable at this time. I did not talk to Kyle enough to find out whether he knew as much about it as I did, about this matter. I cannot remember anybody else that I talked to about this subject at all. I don't believe I know Mr. Westall. Is that your name (to Mr. Westall)? Yes. I talked to both Mr. Westall and Mr. Phillips over here in regard to testifying up here, and that is all. I don't believe I have ever said a word to Mr. Owen in my life. About Mr. Bailes, I believe he told me he used to railroad in Oil City, that is about all we said. He did not come to see me about this matter. I met him right here the other morning when I came up here.

I don't believe there was anyone present in Mr. George's and my conversation. In our conversation I don't think there was; there might have been some other person

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around here. I don't believe I can call any names of anybody who was around there, if there was.

I don't remember just at what point in the siphon cementing job we were on the Christian well when the blow-out occurred. I was derrick man on the well on that first siphon job. I helped them mix the cement in the cementing; helped mix it for the siphoning and poured it in the hole. To my recollection the cement was in the hole when the blow-out occurred. Fifty sacks of cement in the hole, I think. The drill pipe was in there. When the blow-out occurred the drill pipe blowed out of the hole; I remember that distinctly. I was on the derrick when the blow-out started.

After the blow-out I think it was about two days before we started the cement down on that second job with the plug. The idea of using that plug was J. B. McCann's. He ordered it made. I don't know whether he told me direct; he told Walter to make it; anyway I got the order and the order come through him. I believe he was at the well between the time of the blow-out and the time we started this cementing job with the plug; I don't remember. I ain't going to tell you anything unless I know positively; I don't remember positively of him being there when the blow-out was going on. I am not positive if he was there after it blew out before we cemented it with the plug. I am sure that McCann was the one who had the idea of using the plug because he was out there and ordered it made. McCann was the one that directed what method should be used on some of these wells. I don't remember who had the final say about it, McCann or Harper; that is to keep for me.

(Testimony of Harmon Mahaffey)

Fifty sacks of cement was used with that plug on the Christian well, to my remembrance. Not exactly fifty sacks, but we had a habit of using fifty sacks along about that time.

Q Then you don't remember the particular wells; you just assume it was 50 sacks because that was your habit to use that many.

A Well, I am sure it was not less than 50 sacks. I think maybe on some of these wells we did use less than 50 sacks of cement. You are going into my recollection a little too hard, but I think we used 50 sacks on all surface casing and 50 on some of the bottoms, and I think we used 25 on some of the bottom string. I don't say which ones we used 25 on and which ones we used 50 on. I believe we used two sacks of cement and one sack of sand. We never used any gravel at all on them wells up there. Christian 1 was the first time I ever knew of a plug being used in a well. I can say now that it was a better method than the siphon method we had been using, but then I didn't know. I don't reckon that it was an experiment then with the plug, it worked mighty nice. That was the first time it had been tried, as far as I know. I say I know now that it worked better than the siphon method, but at that time I didn't know which one was the best; I didn't know personally myself, because they were both perfect successes. The advantage of the plug method over the siphoning method was that you didn't have to put in so much time to put it in the hole, and eliminated a lot of time there, you know. It saved a lot of time where you might stick your pipe in the operations. You had to go into the hole with the

(Testimony of Harmon Mahaffey)

drill stem and come out and it eliminated that time. We saved the time of putting the drill stem in and taking it out, during which time the pipe might stick. So the method of putting the plug down was a decided advantage over the siphoning system.

Q Do you think that advantage you have described in the saving of time by the plug method over the siphoning method was a really important advantage?

A Now, let me see if I get your question. Do I think the plug method was a really important advantage over siphoning? Yes, sir, I think so. And since the use of that plug method, the plug method has been used in this territory in preference to the siphoning method.

Q You know in my comparisons I was comparing the method you used on the Christian No. 1 well, which you have termed the plug method, with the method you used on the Childs No. 1 well, which you called the siphon method, and that is what you referred to in your answers, is that correct?

A What was my answer?

Q As I remember it, you stated the plug method was a real advantage over the siphon method, is that correct?

A That is right.

Referring to this siphon method as we used it on the Childs well, we soaked the sacks up so they would be soft and pliable and have a tendency to be limber and take up any opening that might be there and not fit in one place and let the cement around in another place. In using the siphon method as we used it on that Childs No. 1 well, we first put our casing in the hole, and then we put our drill pipe in. After we put our casing in

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we pumped the casing and got it clean. Then after we got it free and clean I think we hung some of it off the bottom a little and some of it we set on the bottom, and then we put the drill stem in; we put the drill stem somewhere between 20 and 30 feet off of bottom, whatever came handy. We used the siphon method on the Christian and the drill pipe was off the bottom of the well 20 or 30 feet is my remembrance of it. 50 sacks of cement we put down that drill pipe, siphoned down, is my remembrance. The casing was 6-inch, and we put these soft sacks on top of the cement. During the time of the siphoning I believe the casing was off of bottom. I am not positive. I don't think it would make any difference in the way the operation went whether the casing was off or not. As the cement went down the drill pipe it displaced or shoved ahead of it the fluid that was in the drill pipe. That fluid came back up between the six and the four if the casing was on the bottom. If the casing was off the bottom it would probably some of it come back between the 6-inch and the walls of the holes.

Q Did you agree with Mr. George as to whether it did come up between the drill stem and the casing or the drill stem and the casing?

A Well, that was all that it could do if it was on bottom. If it wasn't on the bottom—if it was on bottom it could only siphon between the drill stem and the casing. I couldn't see whether I agree with Mr. George because I don't know what he said. On Childs No. 1 well, according to my recollection, I don't remember whether it was off the bottom or on the bottom, but anyway, if it wasn't on the bottom we picked it up and it

(Testimony of Harmon Mahaffey)

stuck off the bottom. The cement didn't go all of the way out of the drill pipe, it went as far as it would siphon. Half of it, maybe a little more than half went out of the drill pipe, and when you picked up the drill pipe the other half ran out and joined up with the rest of it. I don't know how many feet of cement was in that Childs No. 1 well in the drill pipe after we started to lift the pipe out of the hole; I couldn't see down there; I don't know. I stated half a while ago, and I said about a half, but you are asking me exactly now and I don't know. I suppose half. I did not have charge of when that drill pipe would be picked up. I was watching it to see when it was picked up.

Q How could you tell a half of it was probably left in the drill pipe at the time it was picked up?

A Well, heavy mud or light mud, as far as that is concerned, seeks its level, and the cement was heavier than the light stuff. I knew that at the time. I knew exactly how it was going to work. I was not consulted by Mr. George as to how to do it, but the reason that I knew that mud would siphon was because when you go to make a connection, if you water up your mud in the pit with clear water and keep heavy mud in the well it will siphon back the other way. It don't take any brains to know that, any fool would quickly recognize it in working on an oil well. I don't know how far up in the casing the cement extended outside of the drill pipe before we started to pick the drill pipe up in that Childs No. 1 well. You would have to figure out how much fluid you had and how much had already come out, and I didn't figure all of that up. I ain't that well educated.

(Testimony of Harmon Mahaffey)

You have got a pencil and paper, and can figure it out. If that pipe was off bottom part of it probably would go outside the casing, owing to the weight of the mud outside. On the siphon method, if the sacks did not shut off the pump, you don't know how much fluid to pump into the 6-inch to get the cement up around the casing; just had to judge it. The sacks went down through the 4-inch, with the weight of the mud on top. They had to be pretty loose in the drill pipe to go down.

Q Do you know as a fact that these sacks, after coming out of the 4-inch drill pipe in which they were loose going down, would expand out to fill all around the 6-inch pipe?

A I know it is a fact, that it is possible it would. It is possible they might. That is what I mean. With that pipe close to bottom the pump probably would labor anyhow without the sacks, but the sacks would make an additional laboring when they hit. There might be other obstructions in there that would do the same thing. A cave-in would do the same thing to start with, but after it broke loose and started to pumping it wouldn't. If the sacks broke loose it would act like a cave-in; if it broke loose it would not act as a cave-in, but it would act as a tearing loose of the bridge, as though the cave-in had been torn loose.

Q How do you know that the sacks would be right on top of the cement after the drill pipe was pulled out? Wouldn't that depend upon how high up the cement outside the drill pipe extended before you pulled the drill pipe out?

A No, I don't think it would. The sacks would—when you started picking up on your pipe the sacks

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would start coming up with your pipe until enough fluid pushed them out. It is not possible the sacks would come out right square on top of the cement and they might—they are figured to come out in the neighborhood of the top of the cement, but I couldn't swear just where they did come out, but they are put in there for that purpose. When you pull the drill pipe up, no doubt they would come up some, but not much. I rather think the sacks would probably come out if everything worked right, in the cement than to think they would come out above it. I don't know whether that was an old drill pipe or a new one which was used on the Christian well; I don't remember. That drill pipe didn't have any tool joints on it. The connection between the sections of the drill pipe was common four inch collar.

Q What condition did you find in that kind of drill pipe in your experience as regards there being any projections on the inside of the drill pipe after such drill pipe had been used for a considerable time to drill a well?

A You are driving at after it had been run a long time it will curve up at the end. That is true of drill pipe, it would do that, so we generally when a joint got that way we discarded it. If we could we did that as soon as it got that way. Sometimes we couldn't because we didn't have any more on the job. I couldn't remember in regard to this Christian well whether that happened there; I don't remember any of it being bad at the end. My remembrance is there was no bull pipe. I am not sure, but that is my remembrance.

My recollection is that the Bell well cementing was the siphon method. Walter George had charge of that well

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as the driller. I worked on the rig. The siphon method as used on the Childs well would tend to either slow down the pump or shut the pump off when the sacks got out of the drill pipe and we pumped the casing. That is what it was put in there for. I don't remember of that method ever making a complete shutdown of the pump; might have had it, but I don't remember.

The Bell well was after the Christian job. I don't know why we used the siphon method on the Bell well; I wasn't the boss. At that time I didn't know which was best, the plug method through the casing or the siphon method.

I also worked on the Jolly after the Christian well and before the Jolly No. 2. Now, let's see about when that was; that was about—that must have been in June. It was after the Bell well.

Between the Christian well and Jolly No. 2 I worked on the Vivian Mercantile well. I think that is the Bell well. Some called it Bell and some called it the Vivian Mercantile, and then the Jolly 1 and then a well south-east of Jolly 1, I don't remember the name or the number. Walter George was with me on that well, on that one that I do not remember the name or number of. My remembrance of that well was that it was a plug job. I wouldn't say that I am positive. My remembrance of Jolly No. 1 is that it was siphoned. I don't know where.

I don't remember the date on which Jolly No. 2 was cemented; must have been September, but I don't remember. It could have been as late as the first of October.

I don't remember the name of the next well I worked

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on after Jolly No. 2. I think it was Jolly No. 3. My remembrance is that after we drilled Jolly No. 2 we stayed on the Jolly farm until we finished up. We drilled either five or six wells on the Jolly farm. Number 5 must have been drilled in 1910. I expect it was drilled in February, January or February. I was with Walter George on all these wells I have talked about; he was the driller. All of these Jolly wells were cemented; I am sure of that; not all the same method. No. 1 was the siphon method, the rest of them were the plug method. After No. 2 they were all cemented with plugs. I am sure of that. I was there at all of them. Jolly No. 3 was drilled and cemented about October. We moved from one well to another, and we generally put in about thirty days to a well. I wouldn't swear that I know exactly the dates of them.

Q What other wells did you work on for McCann & Harper from the Christian well up until 1912, other than the Jolly wells and the Bell well?

A Other than the Jolly wells and the Bell well—let's see now. I went off of the Jolly lease—now, I kind of believe I left the Jolly lease and went to the Pitts well, with Walter George. It must have been Pitts No. 3.

(Adjournment until two o'clock p. m.)

Q You stated something about leaving the pressure on one or some of these wells after the cement had reached its final position. Just how did you leave that pressure on? I mean reached its final place behind the casing.

A Oh, I see. How you want to know what way did we leave it on. You mean did we accumulate the pressure?

(Testimony of Harmon Mahaffey)

Q Yes.

A The pressure was pumped on there with the pump.

The cement in these jobs where we cemented directly through the casing was pumped down the casing by mud fluid. After that pump was stopped, the valve was closed at the top, on the sand pipe.

Q And that left the cement subject to the weight of all of the column of fluid in the casing as well as that pump pressure, did it not?

A No, I wouldn't think there was any pressure on the cement because when the casing got on the bottom it separated the pressure from the inside from the cement, but in case something happened that would leave a little hole there, why, then that would keep the cement from coming back on the inside. It was common practice in these cementing jobs, to set the casing on bottom and leave it there while the cement hardened. We closed the valve at the top of the casing so in case the casing didn't set on the bottom it would act to keep the cement from flowing back by having the pressure on.

Q What, if you had removed all your fluid from the casing when you set the casing, what would have been the result when you—if you had removed the fluid so the casing would have been empty from the time you set the casing and when the cement was hardening?

MR. WESTALL: Now, just a moment. I object to that on the ground that this witness has not been qualified to testify as an expert on theoretical happenings. He has only been qualified to testify as a fact witness, and the question as asked is purely a matter of theory as to

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what might happen under a perhaps impossible set of conditions.

Q BY MR. LYON: I think I can make that a little more clear. Would there have been any objection to have bailed out your casing as soon as you set it without waiting for your casing to set?

A Yes. For this reason: in case the seat leaked you would have lost your cement, and in case when you was running your bailer up and down in the hole before the cement set the vibration on the pipe would have caused your cement not to set tight around your casing. Any excess pump pressure that you close in by closing your valve would soon leak out and you would have the casing standing there full of fluid.

Q The excess pump pressure would not last more than a few minutes, would it?

A Well, you see the water pressure would soon go away, there might be a little air in there which would compress and the pressure would last a little longer, but if the hole was free of all air and nothing but fluid in it, of course the release of a pound would release all of the pressure that there might be on it, but in case the cement started to siphon back it couldn't siphon back because it couldn't come back. There would be no air pressure there for any length of time; we tried to avoid having any air in it.

It is not a fact that I spent about two hours discussing the dates of these wells and the order in which they were drilled with Walter George. I suppose I discussed with Walter George not altogether on the dates of the wells, but different things, about wanting me to testify up here,

(Testimony of Harmon Mahaffey)

and wanted me to tell him what I knew, something like twenty minutes; that is about all, twenty minutes.

Q Didn't you have some difficulty getting Walter George to agree with you or you with him in just the order of these events, and didn't Walter George fail to remember some of the wells you called his attention to?

A Yes, I think Walter didn't remember the well where he went from Jolly 1.

If I had a map I could give you the name of the well I drilled on after I drilled the last Jolly well; I don't know whether that was the Newby well or what it was. It was about 1911 sometime. Let's see, I think I have that wrong now. I believe we left the Jolly and came to Pitt No. 3. It must have been the fall of 1910. Pitt No. 3 was drilled for Busch-Everett. There was present when that well was cemented Walter George, John Burroughs, another fellow by the name of Crawford, I don't remember his initials; I don't know where he is; you might locate that fellow around Vivian. I believe that is all that I can remember. My recollection of when the Pitt No. 3 was cemented is 1910, that is about as close as I can get. I suppose you should be able to get a record of that well and tell just exactly when it was.

I think I left Walter George on Pitt No. 3, and went to work for Wesley Jordan then. I think the first well I worked on after Pitt No. 3 was Lenoir No. 1—Henry Lenoir No. 1, a deep well. That was 1911. It must have been close to Christmas. We all had a blow-out out there, and I think it was sometime close to Christmas. That well was cemented. There was present Wesley Jordan, myself, Les Langston, I don't know this fellow's

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name now, his right name, we called him Hilow McCann, old man McCann's brother, we called him that for short. I believe he is in California. You will have to spell that Hilow because I haven't got much education. He had a short leg and we called him Hilow. That wasn't his name, we just called him that. Old man J. B.'s brother, he is living yet I imagine, I suppose you will find him in California around some gambling joint; more than likely to find him around some gambling joint out there.

Wesley Jordan cemented that well. At that time didn't anybody have to tell him to cement it, he had done learned it himself. You will have to get the record as to the date of that cementing job, I couldn't give you that exactly, that is pretty far back. I have not discussed the date of that well with anybody. As to what I was doing in January 1911 and on what well, that is too deep for me. In January, 1910, I must have been on Jolly No. 5, I reckon. It came a big snow on Jolly No. 5; if I am not mistaken, that was the number of the well. This Henry Lenoir Well No. 1 that I spoke of is between Houston and the bridge on Black Bayou, right across close to the road. I think McCann and Lenoir were partners on that well. I left Pitt No. 3 and went up here to Alden Bridge seems to me like about along that time; I don't remember the exact position of my movement along then.

I remember the Barr farm. I never worked on the Barr farm. I was not present when any wells were cemented on the Barr farm. I don't know who drilled the wells on the Barr farm.

Q Do you remember a well that was drilled by McCann & Harper right next across the line from the Barr farm, across the fence?

(Testimony of Harmon Mahaffey)

A I expect that might have been the Vivian Mercantile. The Pitts well was located right at the Barr farm, wasn't over between a quarter and a half I think.

Q Do you remember working on a well that was being drilled by McCann & Harper right across the fence from the Barr farm at the same time that Jim Clark and Mike Mitchell were drilling a well on the Barr farm?

A I don't know when they drilled a well on the Barr farm. I saw the well drilled for the Arkansas Natural Gas Company known as the Bennedum-Trees No. 1.

Q Well, that is No. 2 well, W. C. Wolfe was the contractor.

A I don't know anything about it though. I don't remember a well being drilled on the Jolly farm for the Arkansas Natural Gas Company. I just knew about a well that was drilled by McCann & Harper for the levy board, known as Levy Board No. 2, and that was all. I was not on that job at any time. I didn't know anything about what processes of cementing, if any, were used there.

I think I have heard of cementing a well by forcing the cement down through the well casing by a plug and pushing the plug down with the drill pipe.

Q When did you first hear of that?

MR. WESTALL: That is objected to as calling obviously for hearsay and not proper cross-examination.

A I know of that method, I know how that was done. Along in 1908 I think they practiced some of that in the field. No, I am mistaken; 1909. I think they put the plug in and pushed it down with the drill stem and also

(Testimony of Harmon Mahaffey)

fluid, kept the hole full of fluid as they pushed the plug down with the drill stem.

MR. WESTALL: I move to strike out the answer as obviously based on hearsay.

A I heard it discussed along in them days, but I had done forgotten all about it until you mentioned it.

MR. WESTALL: All of this is objected to as hearsay and I again urge my motion to strike out.

Q BY MR. LYON: Do you know by whom that was used?

MR. WESTALL: Objected to because the witness has already stated he just heard it discussed. He has not said that he knew it was used.

THE WITNESS: I think—I don't know when they used it personally.

MR. WESTALL: I move to strike out that evidence as not proper cross-examination and irrelevant, immaterial, incompetent, and hearsay.

THE WITNESS: Well, at the time they were siphoning there and pumping down cement, of course, in talking with other well diggers I heard them say that you could push it down with the drill stem and tell exactly when the plug was on the bottom, but as to who told me that I don't know, I just heard it.

MR. WESTALL: Now I move to strike out all of this testimony for the reasons heretofore stated.

THE WITNESS: I never saw a well set that way, and I cannot give the date when I heard that.

MR. WESTALL: These questions and answers are all objected to and motion is made to strike and I now move that the cost of taking and transcribing this evi-

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dence be taxed against the plaintiff, and I warn counsel that this motion will be urged before the Court if that kind of questioning is further indulged in.

Q BY MR. LYON: Do you know of or have you ever seen a method of cementing a well in which you use a hose and a gage and pass the cement down the outside of the casing?

A Yes, sir.

Q Please explain that fully, how that was done.

MR. WESTALL: I object to the question as not proper cross-examination, and no foundation has been laid, and the witness has not been shown to have actually used or observed any such method, and obviously any answer he might give would be based upon mere surmise, conjecture and hearsay.

THE WITNESS: Well, the way that was done—I never saw that done only on surface casing. I saw that on one of the Jolly wells, I can't remember which one it was, whether it was on 5 or 6, one of them wells were cemented—we cemented the surface casing by running the 10-inch in the hole, mixing the cement and pouring it around the outside with a swedge nipple on the top of the 10-inch with a swivel connection on it, and the hose off the stand pipe with a gage on the end of it, and poured the cement around the outside of the casing and the pressure gage would rise—the pressure would rise on the gage until the cement hit the bottom. At the time the cement hit the bottom the pressure would begin to decrease on the gage, which indicated that the cement had hit the bottom, then we shut down and quit.

(Testimony of Harmon Mahaffey)

Q You say by 1911 this method of cementing through casing with the plug which you have described as having been used on the Jolly No. 2 well was in general use in the Caddo fields?

A I wouldn't apply that to the Caddo fields, because I only covered a small area of it, but it was in general use in the country I was in with Harper & McCann. I couldn't swear positively anybody else used it but Harper & McCann prior to 1911. In 1910 there probably were wells being drilled in that district by others than Harper & McCann which were not cemented by the plug and casing method I have described, but I don't know it.

ON

REDIRECT EXAMINATION

Mr. Mahaffey testifies:

I don't believe the siphon method I have described could have been used on the Christian well under the circumstances there at the time we used that plug method there; it couldn't have been used. Now, let's see about that—I guess a man could have used it but there would have been some difficulty. It was off of the bottom and stuck but the well was dead. Yes, it could have been used, the siphoning method could have been used.

Q Now, you have been quite positive in your testimony that the plug was used on other occasions for cementing in the early part of 1909, although as you stated you haven't been able and did not attempt to give exact dates. Will you please explain how you happened to be positive that the plug was used at that time?

A Well, how I happened to be positive it was used is I made the plug myself and my remembrance is I put the

(Testimony of J. R. Crawford)

plug in the hole myself. That was a new thing for me at that time; that was my first one.

(Note: The following note is appended to the deposition by the Notary Public: "On Page 155, beginning at line 25, the witness says he thought counsel was talking about the Childs well to which he had referred just above instead of the Christian well, as indicated in the questions and answers.")

Said testimony appears in this abstract at page 314, line 25, et seq.)

TESTIMONY OF J. R. CRAWFORD, FOR DEFENDANT.

J. R. CRAWFORD,

called on behalf of the Defendant, being duly sworn, testifies:

My name is J. R. Crawford; I live at 812 Ontario South Highland, Shreveport, Louisiana. I am a drilling contractor and light producer of heavy oil. I have been engaged in that business about twenty-one years, that is, not in the contracting business. I have been in the contracting business thirteen years. Prior to this thirteen years I was a common laborer in the fields in the early days around Spindle Top and numerous fields over the country and driller and drilling foreman for the Gulf in 1910 and '11. By the Gulf I mean the Gulf Refining Company. At Spindle Top I worked for a contractor by the name of Moore, Tom Moore, and a man by the name of Charlie Daley was the foreman. Spindle Top is near

(Testimony of J. R. Crawford)

Beaumont, Texas. I came to Shreveport in February, 1908. I don't think I went to work at Shreveport until probably March, 1908, the latter part of February or March. Then I was driller and went to work for the Caddo Gas & Oil Company or the Dawes interests at that time. Billie Wolfe was superintendent. That is Mr. W. C. Wolfe, of the Keene & Wolfe Company of this city. Beginning with my employment in February, 1908, and continuing during 1908 and 1909 I was driller. I was working for the—Billy Wolfe and I both worked for the Caddo Oil & Gas Company in the year 1908; I didn't work all the year, neither did he, but I think according to the best of my recollection he went with them—before he went with them and went with this concern I think along in March, and he and I worked for that concern the remainder of the year, and then Billie started in the contracting business, and I continued to work for Billie all the year 1909.

During that time, beginning in 1908 and continuing in 1909, I don't remember having any experience in cementing oil wells except—in 1908 except we cemented surface casing in one or two instances with what was commonly called I presume the siphoning process; in other words, we set the 10-inch or whatever we set—8-inch sometimes and sometimes 10-inch—we would then pump the mud up and get it up to where it was practically clear muddy water and pour the cement around the pipe, and then the cement being heavier than the water of course would push the water out the top of the pipe and the cement would settle down around it. I don't remember having done

(Testimony of J. R. Crawford)

any other cement jobs other than that during the year 1908.

Q D you know how cementing was done in this field in 1909?

MR. LYON: That is objected to as assuming a fact not testified to by the witness, and I object to it for that reason.

Q BY MR. WESTALL: Do you know whether other wells were cemented in this locality in 1909?

MR. LYON: That is objected to as leading and suggestive.

THE WITNESS: Yes, sir, during the year 1909 Mr. McCann—we had all been experimenting with cement—not all you understand, but a great many of us had been trying to learn how to get the pipe seats to hold in casings. So in 1909 along in the wintertime—I am sure it was because I remember quite a little snow we had in the morning after we got up—I was the driller, Walter Ray was one of the helpers, and we had a full crew there to drill the well, so we got up there, it was on the property owned by a man by the name of Powell, and by the time we finished that—we were doing it by displacing the water inside of the pipe and pouring the cement in and putting sacks in there, and one thing or another on top to make a plug. And I understand he had—I just understood it, I was told, I didn't see—

MR. LYON: Now I move to strike out all of the testimony of the witness in regard to what he understood from what he was told, as hearsay and incompetent.

Q BY MR. WESTALL: When were you told this?

MR. LYON: Same objection.

(Testimony of J. R. Crawford)

A About the time I went up and started this well. We cemented this well with a plug, this Powell No. 1. I have no means of fixing the exact date of the cementing of this Powell No. 1, but I fixed the date in my mind in this way. I know that I came here in February, 1908, that is, to Shreveport, and worked in the mud up here around Oil City during that year, and then that winter I went to Vivian to drill this well as I stated a while ago, and the next morning there was quite a snow on the ground, so it must have been winter; I know it wasn't summertime. The exact date I can't give you, whether it was January or February, but it must have been one or the other, in 1909.

Q And that date, of course, could be determined by proof of the time the Powell well was drilled?

MR. LYON: That is objected to as incompetent, irrelevant, and immaterial.

A I think so, I don't see any reason why it should not.

Q You say on Powell No. 1 a plug was used; will you describe the method in which that well was cemented?

A Well, we generally had them turned at the shop, had a plug something like two and a half or three feet—it was not long, and smaller at the bottom end than at the top; about five and three quarters inches I suppose; then we put sacks of shale or sacks wrapped up and wet. They would act as a stop to keep the water from coming around the plug so that the plugs would travel with the full column of water and column of cement below and shut off our pump when it hit bottom; lifted the casing up 12 or 15 inches and pumped our cement around, and of course

(Testimony of J. R. Crawford)

our pump stalled when that was done, and of course it was about the same as we are doing today and have been doing since.

Q Now, I would like for you to start at the beginning of the process and tell what was done, that is, at the very start of the operation of cementing, and describe it in detail so that the court who might not be familiar with these operations can understand it.

A Well, we drilled the hole down to near the sand or where we thought it was probably 20 or 30 feet above the sand or 50 feet, and then we run in the 6-inch casing and landed it on bottom. Then we plugged the hole in the end so that no water would get inside of the drill stem, and naturally when you run the drill stem in it pushed the water in the 6-inch out, which would displace as much water in the 6-inch as the diameter of the drill pipe, and we ran in as much as eight or nine threbbles. That would average about 60 feet, that is three joints. The whole three joints would make 60 feet. Then we mixed the cement in boxes and poured it in this casing, and then we had the whole 25 or 20 sacks of cement as we used in those days in the casing; then we put the plug in on top of the cement, and then screwed our swivel in that 6-inch pipe and fixed it up, and started the pump, and naturally the pump would pump the plug to the bottom of the hole, but we wouldn't pick the casing up far enough to get over the top of the plug. The top of the plug would still be in the bottom of the 6-inch pipe, and of course it would stall the pump. This 60 feet of drill stem that we put in was to displace enough water out of the 6-inch pipe to allow us to put in 25 or 40 sacks of cement inside

(Testimony of J. R. Crawford)

of the pipe on top of the column of mud. We did not leave this drill pipe in the hole in this case while we were pouring the cement in the casing. The idea was to simply get a displacement so that we would have room for the cement.

The swivel is a part of the drilling equipment that acts as—I don't know that I can describe it so it would be understandable. It is a connection made on top of the pipe with a hose two or two and a half, rubber hose that connected with the stand pipe and pump. It is a part of the machinery that connects your pipe to the pump to get your circulation, if you understand what I mean.

Q What is the circulation that you have referred to, what do you mean by circulation?

A Well, the rotary—sometimes the rotary process of drilling is sometimes called the circulating system, I believe, but generally known as the hydraulic system of drilling. I believe the different manufacturers catalogs all describe it as the hydraulic system of drilling, and by means of the swivel connection on the drill stem or your casing you circulate your water from your slush pit outside of the derrick floor or outside of the casing, and it comes back up around the casing, and there is a ditch, of course, that runs around to the slush pit as a rule. In drilling the circulation is to wash out your formation as it is drilled, sending it to the pit. In cementing it would be your purpose to pump your cement outside of the casing and around your plug on bottom.

Q And in your experience has that step in securing circulation always been resorted to during all of your experience in cementing up to the present date?

(Testimony of J. R. Crawford)

MR. LYON: That is objected to as leading and suggestive.

A Well, there is a part of the—some of the companies—some of the drillers didn't adopt that method of cementing for some little while.

Q I am talking particularly about the step in securing circulation.

A Well, yes, yes, sir, I don't know of any other. When I say yes I mean that was a step generally used preceding cementing.

Q And has continued from then up to the present date?

MR. LYON: Same objection.

A Yes, sir.

Q BY MR. WESTALL: I wish you would please describe just what was done with the casing just preceding and when the cement was put in the casing and when it was pumped down, how was the casing handled.

A Well, when we landed the casing on bottom we would run the drill stem in, and we plugged the hole in the pipe so that no water would go into the drill stem, so that we would get the full capacity of the drill stem in the displacement. Run the drill stem in say eight or ten threbbls in the pipe, which would force enough water out of the 6-inch pipe, you see, to allow you to put the cement in, then pulled your drill stem out, and you would have three or four hundred feet—I don't know just how much—we were guessing at it, not being engineers—we learned it by experience, about how many to run in to get displacement for thirty-five or forty sacks of cement. Then we would mix the cement, pour it into the casing,

(Testimony of J. R. Crawford)

then screw the swivel in—but prior to screwing the swivel in we put the plug in and put sacks on top of it, using a plug two or three feet long, then we picked the pipe up only about a foot or fifteen inches so that would necessarily leave a foot or a foot and a half of the plug still in the six-inch pipe so it couldn't pass out of the pipe when it hit the bottom, and when the plug would hit the bottom then the sacks would shut off the pump, so that you couldn't pump the fluid around the plug after it hit bottom, and then we set the 6-inch back on bottom, and left it to set for six or eight days, seven days I suppose has been the average six to eight anyway. At the time we got through and set our pipe on bottom, we left the swivel at the top right there until we went back—as a rule we did, we left the swivel on the casing until the cement—until we felt reasonably sure the cement was hard enough to take it off and put in a nipple on the six-inch pipe to make it the right height. Sometimes we took the first joint out to fit in a shorter one.

Q What would prevent the cement from running back from the outside of the casing, back into the casing and up inside?

A Well, as a rule in this country the formation is hard enough to hold a string of pipe standing down on the bottom of the hole, but without the cement when you make a hole below your six-inch the pipe would fall in most instances. I don't mean to say that it did in all cases, but it would in most instances, but after the cement hardened it held the pipe.

If there happened to be an area around the bottom of the pipe and the formation down there did not shut it off,

(Testimony of J. R. Crawford)

it would probably equalize in that event; what I mean is your cement would push your plug up in the pipe along back in the hole until it reached its level both inside and out.

Q Was there any method by which you could keep the cement from coming back into the pipe and coming up inside in case of such a leak?

A Why, we pumped all of the pump pressure on the plug that the pump would put up, and then closed the standing valve and left it in that manner. We thought probably that would help hold it down. In that case you would have a column of fluid in your pipe and you would have your tight head on the top and have it shut off, so if the cement started to go back and come up, it would pass to this place or push up the fluid in the pipe, and it could not escape.

Q Now, you have said something about having heard of the use of sacks and shale and various other forms of plugs in 1909? From whom did you—

A Did I say 1909 or 1908?

Q 1908. From whom did you hear of such plugs?

MR. LYON: That is objected to as hearsay.

MR. WESTALL: I might state to counsel that we take the position that this was common knowledge throughout the fields and that it was a matter of common public interest that everybody knew about and talked about.

A That statement is very true, those are the facts. We were all working to arrive at some way that we might be able to set pipe in Caddo Parish and get a seat that would hold. For instance, we might drill in a well that

(Testimony of J. R. Crawford)

would come in at three or four or five thousand barrels and the casing would test all right—that is, prior to the cementing process, and the next thing we knew it was all water, and it was a matter of common interest to all of us drilling in the field to help each other out with anything we knew about to cure this condition, and no one concealed or held back any information from the other that would help eliminate this condition. To the contrary, we were always glad to pass the word on to the other fellow. We spent a lot of time and a lot of money trying to learn to devise more ways and means by which we might be able to make a tight joint that would stay tight.

Q When did you first, so far as you can recall, hear it generally talked about in the field about the use of any kind of indicator, whether it was the use of sacks or sacks of shale or a plug, wooden plug, or anything else—I mean the first use of indicators that you heard of.

MR. LYON: That is objected to as calling for hearsay.

A That was in the latter part of 1908. I don't know that I could make a statement as to how extensive it was used, but there were several instances. For instance, we cemented a string of 8-inch—I was working for McCann & Harper at the time in the fall of 1908 sometime—No, I take that back, I was probably getting ahead of my hounds. This well I have reference to was drilled later, I guess, the one that I started to mention.

Q BY MR. WESTALL: Well, speaking particularly about the use of cement sacks or any kind of sacks or the use of sacks with shale which you stated were used instead of the plug at first, to what extent was the use of such indicators common to the field in say 1908?

(Testimony of J. R. Crawford)

MR. LYON: That is objected to as assuming a fact not testified to by the witness, and as leading and suggestive.

A I think I made the statement a while ago that it was generally talked about and a matter of common knowledge in the latter part of 1908.

Q BY MR. WESTALL: And then practically all of the drillers in the field here knew of such use of indicators through casing, did they not, at that time?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and leading and suggestive and incompetent and not the proper method of proof. Obviously this witness cannot testify as to what all the drillers knew, no foundation at least having been made for him doing so, he having testified that he had only been in the field a few months at that time.

MR. WESTALL: Well, the witness can know if it was a matter of general knowledge and general talk among all of the drillers.

MR. LYON: Well, that isn't the question, and I also objected to it as leading and suggestive. The question you propounded is grossly leading and not the proper method of proof, and no foundation has been laid.

THE WITNESS: Well, it was generally talked of among the drillers with whom I associated, there wasn't a great many at that time in this part of the country, comparatively speaking. I mean as compared to later on.

I don't know that I could give you the approximate number of wells that were cemented during the year 1909 with such a wooden plug as I described in this field. I know of wells which were not cemented by some process

(Testimony of J. R. Crawford)

during 1909. I understand at that time the Texas Company did not pretend to use the cementing system at all for the reason that their superintendent had had a patent or was trying out a packer that he had invented—I don't know whether he had a patent on it or not, anyhow they were using that packer and trying it out, and if they cemented any wells during 1909 I had no knowledge of it.

Q Could you give us the names of any wells, other than the ones you have mentioned, which were cemented by the use of a plug pumped through casing as you described in 1909?

A We cemented the next well that we drilled, what was known as Blackmon No. 1, which was the first real oil well drilled in that Vivian district. That was cemented by the same process we used in the other one. If you will look on the map you will see that B. G. Dawes owned it. I don't know of a man in town who could give you the information or that would remember as to the method used on that well, except probably W. T. Ray. He was what we termed a roughneck on it.

As to Powell No. 1, we cemented that by the use of a plug. This same boy should be able to corroborate my statement regarding that well. I could not state the exact date when Powell No. 1 was cemented, but we began the well in the winter time, in the winter of 1908 and '9, and it was only 1050 feet; that is the approximate depth of that well. We drilled these wells in approximately thirty days at that time, that is, rigged up and drilled them and completed them, it was either in February or March, I believe, not later than April, 1909, that that well was cemented, because I don't remember that we were any

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longer on that particular well than we were generally on the usual wells. There would not be any possibility of my being mistaken as to that date as much as six or seven months. I don't think it is possible that I would make a mistake of as much as four months, because, as I stated before, we drilled these wells on an average of thirty days. Of course, I could be off on the date as much as thirty days, but I don't think it possible that I could be off more than that.

As to Blackmon No. 1, my recollection is it was in the springtime when it was cemented, and the way I fix this date is that when we drilled the well in we had an oil well, and Mr. Dawes asked me to get up at three o'clock in the morning and go out there, and if there was any oil showing around the derrick and on the pit to wash it all wasy, because there was some more land to be had there which he wanted before it was brought in, and he didn't want the oil showing up at daylight; and I went out there, and it wasn't cold, it was very pleasant. I walked the two and a half or three miles; got up at three o'clock as he asked me to do, and walked up to the well in my shirt sleeves.

Powell No. 1 was a well of the Vivian Oil Company, and so was Blackmon No. 1, the Vivian Oil Company or the Dawes interest, which company they hadn't organized—the Vivian Oil Company wasn't organized at that time. They did that shortly after, but I don't know the exact date of the organization, but I was working for Mr. Dawes and Billy Wolfe, and as usual the driller don't know who it is for unless he sees the name of the company. I should think Mr. Wolfe would know about the

(Testimony of J. R. Crawford)

cementing of Powell No. 1 and Blackmon No. 1. Just after we finished this Blackmon well they moved me back down to Oil City. Billy says, "I want you to go back to Oil City and drill on that deep stuff, twenty-one or two or three hundred feet," which was a deep well in those days. The man he had had down there wasn't getting along very well, and he and the Gulf owned a half interest in this well with Mr. Dawes, or I believe it was later known as the May Oil Company; and we drilled the Texarkana No. 1, and the Gulf Company at that time had a process of setting casing. They took off the bottom of the set shoe, and screwed a three to five foot nipple or six inch nipple on, and wrapped a Manila rope around it, and they had been getting along fairly successful with it, and they suggested that we do that down there, and that is the way we set three or four wells that I drilled down there. Then, of course, the common—as I stated a while ago, it was common knowledge, or supposed to be, that they were cementing wells around that Vivian district and in that big gas stuff.

MR. LYON: That is objected to as incompetent, and I move to strike out the answer on that account as well as it being hearsay.

THE WITNESS: I went out to Oil City in the spring time, and I fix that date in this manner: that I hadn't been down there but just a few days, I would say something like on the first of June when they had a cyclone that blew away this little town of Gilliam up here, about twenty-one miles up the river, and we had the little cyclone to hit about a mile this side of Oil City, and I happened to be down at the supply store and was standing in front of

(Testimony of J. R. Crawford)

it watching this same cyclone; it struck there and then jumped over to Gilliam, and I was trying to make up my mind whether to run into that fire box on that boiler in front there or to go in that supply store. That was the Gilliam storm. I know it was in the spring of the year. I don't know whether the darkies around here have a song about it or not. I couldn't give you the exact date of that storm. I drilled both Powell No. 1 and Blackmon No. 1 of the Vivian Oil Company prior to the time of that storm, and they were all cemented.

ON

CROSS EXAMINATION

Mr. Crawford testifies:

I can't say I am interested in the outcome of this case, anymore than I would like to see justice done to everybody and everybody get everything they are entitled to. If a notice from Mr. Erle P. Halliburton, making a claim against me for infringing on the patent here in suit, got into my office, I didn't see it. It is my understanding that such notice came through the Mid-Continent, that is all I know about it, but that is hearsay, I didn't see any of the notice. As to what I learned about it through the Mid-Continent, I can't recall enough of it to answer the question intelligently, only I know by being told that he had anticipated or intended bringing suit; I took it to be against each and every operator. I was one of the operators that I expected would be sued for infringement of this patent.

Q Did you have anything to do with any committee appointed by the Mid-Continent Oil & Gas Association, Louisiana Branch, to work up a defense to fight this suit.

(Testimony of J. R. Crawford)

A I am one of the vice presidents of the Mid-Continent, and we had some discussions before there was a committee appointed by an officer who acted prior to my time, and they are the ones who—they appointed the attorney. I have had nothing to do with appointing anybody. I did not discuss the matter with the committee except that I called up Judge Milling some time ago, or some of the others, and asked them what was being done, because of the fact we had been urged that it was now imperative that we do something; that we had to act one way or the other. Judge Milling told me that. It was two or three weeks ago, I am not sure; it was at one of the meetings of the Mid-Continent. I can't recall the names of the men that were present when he told me that, all of them that were there, but the minutes of the meeting should show.

Q Just tell us who you remember was there.

MR. WESTALL: I object to that as manifestly not proper cross-examination, incompetent, irrelevant, immaterial. I think if counsel is endeavoring to show the connection of the witness he has done so without going into details as to the organization of the company or as to discussions that might have happened at meetings they held in the organization.

THE WITNESS: I think my partner was present, William Sebastian, and Judge Milling and myself and Joe Elam, the secretary; that is all I can remember that was there. Judge Milling I don't think stated the reason it was imperative we do something at once about this matter, nor did he suggest what we should do. It wasn't suggested there what we should do, as I remember it. As

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I remember it, there had been a committee appointed, and they were supposed to do and act as they saw fit—a committee of three. Clyde M. Bennett, I believe, was one, and Judge Milling, and the other I don't remember who he is. Anyhow they had power to act as they saw fit. I don't know what that committee had done. There was no money made available for this committee to use in working up this defense that I ever heard of. The present committee has no funds that I know of. I understand Mr. Phillips has been appointed by the committee to work up this defense; I don't know even that myself. I don't know who is paying him.

Q Then, as I understand you, you mean to say that when these notices were received this Association decided that they would try to work up a defense rather than permit these operators in this field to be subjected to the terms of the patent and the payment that would be required under it?

A I don't know that they started out with that intention at all. I don't really know what intention they started out with. I presume the purpose of appointing this committee was to work out ways and means or to do whatever they saw fit or was necessary. At these meetings of the Mid-Continent, although I am vice president, I rarely attend for the reason that I am away most of the time.

Q But you knew then and you know now that the Mid-Continent Oil & Gas Association through this branch here, the Louisiana branch, is endeavoring to defeat this patent, do you not, the Association of which you are Vice-president?

(Testimony of J. R. Crawford)

A I don't know that the Association is doing it themselves as an association no. I have not talked to these individual members, but judging from outward appearance I would say it is true of them.

Q And isn't that governed by the officers of the Association of which you are Vice-President?

A I don't believe there is an officer in the bunch except, as I remember the third one—I don't remember who he is, but as I remember it there isn't an officer in the bunch, and by the way, I believe Mr. Phillips is also or was a member of the legal committee.

In the last two or three years I have drilled wells outside of the State of Louisiana, in Oklahoma and also in Arkansas. I couldn't tell you how many wells I have drilled in Oklahoma in the last three years unless I could go to my records. But I remember the number I drilled in Tonkawa, I drilled seventeen or eighteen. I think Mr. Halliburton there does the cementing for *for* the Gipsy; he is here and you can ask him. As far as I know the cementing was done for the Gipsy by Mr. Halliburton. It is my understanding that the Gipsy is the Gulf Producing Company in Oklahoma. I don't know about whether it is one of the largest producing operators in the State of Oklahoma or not, but it is a very large operator. I do not know to what extent the other operators in Oklahoma in the last year or two or three years have recognized Mr. Halliburton's claims and employed him in that territory, for this reason: I got crippled up last year and I wasn't in Oklahoma from January until January, and I have only been there once since this last January.

(Testimony of J. R. Crawford)

Q Have you any objection to the service Mr. Halliburton gives in Oklahoma, or do you know of any similar service in this territory?

MR. WESTALL: That is objected to as an improper method of cross-examining, irrelevant, immaterial; what possible bearing could it have on this case as to whether Mr. Halliburton does or does not perform his work correctly. That is not proper cross-examination as counsel fully knows, and it is incompetent, irrelevant, and immaterial.

A I don't say that I do know. The company pays the bills and I have nothing to do with it.

All I know about the situation in Texas in the last year or two since Mr. Halliburton has been down there is from a hearsay standpoint. I haven't drilled any in Texas lately, and from my own knowledge I don't know whether this patent is being recognized by the companies there or not. I haven't asked a one of the companies in that field about whether they recognize this patent or not, and to my personal knowledge I do not know. I haven't asked them.

Q What do you understand?

MR. WESTALL: I object to his understanding as being obviously incompetent.

MR. LYON: It is simply showing the frame of mind and the intent and understanding of the witness; he is vice president of the Association that is putting up this slush fund to fight this patent.

MR. WESTALL: I object to counsel's statement about a slush fund for the reason first that it is not true, and I object to the question as propounded as being ob-

(Testimony of J. R. Crawford)

viously not proper cross-examination, incompetent, irrelevant, immaterial, and I instruct the witness that he need not answer it unless he sees fit.

THE WITNESS: Well, the most information I have had about it I gained from my old friend Si Bell sitting over here. I haven't talked with anybody else; I haven't seen one of them since this came up.

Q You are not in position to say that the interests which are operating in Oklahoma and Texas and also operating in this state and that are members of your Association are supporting in any manner this opinion that you have given here against this patent, you can't state that they are?

A I can't state that they are either as individuals or as an Association, because I don't know what this committee has done.

Q Now, did I understand you to testify that you were here in the Caddo district, the different fields in 1909, 1910, and 1911, and knew what the conditions were in regard to the cementing operations as far as general conditions were concerned, and what was generally in use in the field in those years?

A I think I stated the drillers which I associated with and came in contact with, that with them it was a matter of common knowledge, general talk about cementing and the different processes. I know Hugh West. I heard something about his being sued by Mr. Halliburton or the Perkins Oil Well Cementing Company in the Tonkawa field, but I didn't get any of the details. I was not a partner of Mr. West's at that time. I staked Hugh West in 1918—let's see, I wouldn't be positive whether it was

(Testimony of J. R. Crawford)

1918 or 1919 I started Hugh West in business down in Cotton County, Oklahoma. To the best of my recollection I was associated with him in business about thirteen months. We dissolved partnership while he was at Dewey. I have known him since he was sixteen years old. If I am not mistaken he came to this country in 1910, sometime in the early part of the year, as I remember it. I remember him here at that time when he first came here. I don't think he was familiar with the same general conditions and had the same knowledge that I refer to, because I had charge of a bunch of drilling rigs in 1910 running for the Gulf Company, and I sent him around every day to get reports from each drilling rig; it was my business to see that the wells were drilled, and his business to get the reports and turn them in to the Shreveport office with my *approval*, and he was just a big overgrown boy. I don't think he had ever rough-necked a day in his life at that time. To be correct at all I can't say what was the largest operator in this field, in the Caddo District, including Vivian, in the years 1909 and 1910. The Gulf Company and the Texas Company and the Benedum-Trees interest were among the largest. The Benedum-Trees began, if my memory serves me right, in 1909. The Sun Company probably were in here before. I don't remember the dates. The first I remember of the Sun Company was in 1910, though. The Standard bought the Benedum-Trees interest, and I am not sure of that date, but it must have been along in 1910, I would say the latter part of 1910 or the first of 1911 that the Standard bought the Benedum-Trees interest. I don't remember when the first well was cemented

(Testimony of J. R. Crawford)

that was drilled by or for the Gulf Production Company. I know I had been with them some little while when they were still using their rope packer, as I remember it, and it was some little while after I went with them. I would say the first I remember of them was along in 1910, sometime the latter part of 1910. I don't remember the well. I don't know that I can remember what was the first well that was cemented for the Gulf Company. I can remember cementing Ferry Lake No. 1 for the Gulf. That was drilled in 1912. That is the first well I can state positively that was cemented for the Gulf Company, though I feel reasonably sure if I could go to their records I could dig out a lot of them prior to that time. That is the first one I can remember positively.

I didn't see the Sun Company well cemented, you understand, but it was out on the Barr lease at Vivian by their superintendent, who was Jim Clark. I remember that because at the time he thought he had pulled off a great stunt. He was a new comer in this country, and if I remember correctly it was the first well he had drilled. I am not positive whether that was the first well the Sun Company had drilled in this field or not. His statement was that he was the first one that had ever done that at that time. I asked him about it a few days ago; he said he was under that impression at that time, but he said he found out that he wasn't, he found out then that he wasn't the first one that had done it. He said he found out that the same method had been used before. I was not a witness in the case in which Jim Clark testified, known as Busch-Everett vs. McCann & Harper; I wasn't even at the courthouse. Jim Clark did not tell me during this talk

(Testimony of J. R. Crawford)

that he knew or thought that McCann & Harper had been using that and he tried it out and it was successful, and that he got up this plug method himself, and nothing in substance to that effect that I remember of. I will not state positively he did not. You might make a statement in a casual conversation that I would not remember, therefore I would not state positively.

Q Well, when he told you he thought in nineteen hundred and whatever it was that he cemented this Barr well that he had accomplished something, as a matter of fact didn't he state that he had tried McCann & Harper's method and it was unsuccessful, and that he developed the plug method, didn't he state that at that time to you?

A No, sir, not that I remember. I will not say positively that he did not.

Q Have you instructed your committee to call Jim Clark as a witness in this case?

A I have no committee; I have nothing to do with the committee. I am vice president of the Association for which this committee functions.

Q Will you instruct Mr. Phillips now to call Mr. Clark?

A I don't think it is any of my business who is called as a witness in this case. Mr. Clark lives here, but he is out of this immediate country right now. I think he has been advised that he is subject to suit on this patent, for infringement of it; I am reasonably sure he has.

Q And he desires along with the rest of these people in this organization to defeat this patent by working up a defense to it, does he not, so far as you know?

(Testimony of J. R. Crawford)

A I don't know anything about that. I don't know whether he does or not.

I told you a while ago I wasn't positive as to the date when Barr No. 1 well was drilled by the Sun Company and cemented by them. It occurs to me most likely—now, I am not positive of that date, no, sir. I think it was in 1910; I think it was.

Q Do you remember having seen or ever knowing at the time or hearing at the time of the Gulf Levy Board well as the first well the Gulf Company cemented?

A That was out of my district. Mr. Rife was the assistant production superintendent and I was assistant drilling superintendent under Canfield. I was not present at the cementing job performed by the Gulf Company on its Levy Board well. I don't remember, but if I had any knowledge about it it was only in a general way. They might have told me something about the cementing job, but I had about eight drilling rigs in my own district and I didn't have time to run around looking at the other fellow's practice. That must have been sometime in the early part of January; I am not sure of that; it could have been in 1911. To the best of my recollection that well was drilled in 1910. I told you a while ago I didn't remember when the first well was cemented for the Gulf Company.

I made the statement a while ago that the Texas Company declined the cementing process in favor of the packer which their superintendent had invented. I believe they have finally come to the cementing, but it has been in latter years. I don't remember them using cement to any degree until after Clayton left them. Clayton left them

(Testimony of J. R. Crawford)

about four or four and a half years ago to the best of my recollection. I don't remember that they ever cemented a well prior to that time. I always understood that they always used the Clayton packer all the time.

I know Cleve Rogers. He worked for several. I think he worked for McCann & Harper at one time. If he ever drilled for them I didn't know it. I think he roughnecked for them a while ago, several years ago.

Q Wasn't he working for them on some of these wells in 1909 when they are supposed to have cemented with this plug method? Didn't he work as a derrick man during that time?

A I don't remember whether he was derrick man or floor man. I can't say that I remember him being there at any of these cementing jobs. I do not remember that he was not there; my recollection is that he worked for them. He did not work on that Powell No. 1 well. He did not work on that Blackmon well. He was not there during the cementing operations that I remember of.

I might know Ed Steen quite well, I know so many of these roughnecks and drillers around the country I don't try to remember their names. Of course, the boys I come in contact with daily I get more familiar with. I have heard of that boy, but I can't place him as to where he was or where I saw him last; as I tell you, I probably wouldn't know his name if I saw him.

I know Charlie Doolittle. He was assistant superintendent for the Busch-Everett. They were in operation here in 1907, I believe, the Busch-Everett Company, and he should know whether these wells were cemented or not, and I think he should know how they were cemented.

(Testimony of J. R. Crawford)

John Russell was general superintendent or general manager, I don't know his title, for Busch-Everett. I presume he should know how these wells were cemented. He must have started in with Busch-Everett when they first started in this country or shortly afterwards. I can't be exact on that date or the date of any of these things.

Q How about this Benedum-Trees or Standard of Louisiana outfit that you referred to as being one of the large operators in this territory, when did they first cement a well that you knew of?

A I don't remember ever having gone to anybody else's property that I was not working on, to watch them cement a well.

Q When did you first hear of them cementing a well?

MR. WESTALL: That is objected to as calling obviously for hearsay evidence, incompetent, irrelevant and immaterial.

MR. LYON: This is all subject to our objection to the witness as to his general conclusions on direct examination, and is taken subject to that objection only.

A I couldn't give you that date because of the fact we discussed things in general every time we met a man that knew anything that might help us—we were all trying to, as I have stated heretofore, work out some plan or some means that would be of benefit to everybody concerned.

Q Did you receive any information or knowledge whatever of this Benedum-Trees or Standard Oil Company interest cementing a well in Louisiana prior to 1911 that you can refer to at this time?

(Testimony of J. R. Crawford)

A I don't remember of a single case even in 1911.

Q Now, during the year that these big companies were not cementing, that is to say, along in 1909 and 1910, after you have heretofore testified that this was a matter of common knowledge, wasn't there a great deal of difficulty being experienced in this field with water breaking into the wells just as you have described your difficulty on these earlier wells?

A Which do you mean?

Q You remember in your direct testimony referring to the fact that you would get a seat but in a short time water would break into the well. You remember you mentioned something about a 5000-barrel well?

A I think I said three to five thousand. These companies were having quite a bit of trouble. The Pure Oil Company were a large company at that time, but they did not operate extensively, they did not have a great deal of holdings. They were one of the large companies at that time. I cannot state when they cemented their first well; Jim Rib should be able to tell you. I don't remember whether they had begun operating in this country in 1910 or '9. It seems to me that they began along the early part of 1911 operating in this field. I wouldn't state that as a positive fact, but that is as I remember it offhand.

Q Well, can you name any large company, large at that time, recognized as one of the big operators in the field, which cemented a well prior to January 1, 1910, in Louisiana, and, if you can, please state the company and the well and the date of cementing?

(Testimony of J. R. Crawford)

A Well, I say, as I have stated heretofore, I was working for the Caddo Gas & Oil Company in 1908, a larger portion of the year, and the next year I worked for Billy Wolfe or the Wolfe Drilling Company, and we drilled for the Vivian Oil Company and then—that was in 1909, and in 1910 I went to work for the Gulf and worked for them in 1910 and 1911 and quit, and I haven't worked for a big company since, except contract work, with one exception when I worked for about two or two and a half months at the Electra Field, drilled a test well out about five miles; and the average driller, if he takes care of his job, hasn't time to go around to see what somebody else is doing, and I never figured on the dates or what other people did. I have a fairly good remembrance as to the things I have done myself, but to make statements of that kind or to remember what other folks were doing and give specific dates, I can't give specific dates most of the time on my own work with the exception of the month or something like that. I think that fairly answers your question. I kept logs on the wells I was drilling with Wolfe in 1909 and 1910. I went to Wolfe some time back and he said the Vivian Oil Company's records were all destroyed—B. G. Dawes headed the company, and he said if they didn't take them to Chicago he didn't know where they were. I cemented wells while I was with Wolfe. I don't remember a well that he drilled for the Arkansas Natural Gas Company until after I left. He had, as well as I remember Mr. Dawes, he had three companies: The Vivian Oil Company, the Washington Oil Company, and the Broussard.

Generally it was the practice in those days on the log of a well to state in what the casing was set, and if it

(Testimony of J. R. Crawford)

was set in gumbo it would state on the log, and if it was set in cement it would generally state so.

ON

REDIRECT EXAMINATION

Mr. Crawford testifies:

Q Now referring to this Powell No. 1 and Blackmon No. 1 jobs of cementing, were they successful cementing jobs?

MR. LYON: That is objected to as not proper re-direct examination.

A We never had a leak, we never had any leaky casing there that I ever knew of afterwards. Since that time the method of cementing with the plug has not always been successful, that is, in getting a water shut-off. In fact, I have never seen a man yet that I thought could get one in every instance.

We have had very little leaky pipe through this territory, and it is a very rare case, might occasionally get a bad batch of cement that would not set, poor cement is about the only reason we ever fail to get good seats. We get a leaky pipe occasionally—occasionally we find a split pipe on the top. For illustration, a short time ago we had quite an argument, took a contract to drill a well for one of the companies, and we set the pipe right on the sand, in fact drilled in the sand two feet and pulled the casing and had eighty feet of salt water. After setting a few hours they said, "The casing is leaking," and I said, "No, the casing is not leaking," and he said, "Where is the water coming from then?" and I said, "Out of the sand." So we took the water off by means of rolling up cement sacks and running them into the

(Testimony of Walter G. Ray)

hole and tampering down, running the drill stem in and pumping that a while in that position, and bailed it dry and it stayed dry. That was six weeks ago. It was twenty-one or twenty-two years ago I first became acquainted with Si Bell. I have heard a report that he was out in this field in 1908 and 1909, but I don't think he was. I don't remember having seen him out here when we were cementing by that process. I haven't seen Si from the time he left for California until the other day and I ran upon him here. I first got acquainted with Mr. Perkins here on this trip.

July 1, 1924. 10 A. M.

TESTIMONY OF WALTER G. RAY, FOR DEFENDANT.

WALTER G. RAY,

called on behalf of the Defendant, duly sworn, testifies:

My name is Walter G. Ray; residence, 828 East College Street, Shreveport, Louisiana. I am a drilling contractor and producer. I started in the field in 1908, and about 1912 I started contracting, and have been doing that since that time, but I started to work in the field in 1908. When I started in 1908 it was my first experience in the producing end. I had been in the pipe line end in Texas; been working on pipe lines for the Gulf Refining Company. In 1908 I was employed by the Caddo Gas & Oil Company. Mr. Wolfe was the superintendent. W. C. Wolfe. He was working for the Caddo Gas & Oil Company, which is not now in existence.

(Testimony of Walter G. Ray)

Wolfe quit them shortly after I started; he quit them about the year 1909 and started contracting for himself. He is at present connected with the firm of Keene & Wolfe. They are producers and refiners as well as contractors. I began work December the 5th, 1908, for the Caddo Gas & Oil Company, which I state by reference to this little red book here, which is part of our time book. I don't know whether you can tell much about it or not. This book is a paper-covered book, marked "Engineers Time Book," containing a number of entries written in indelible pencil relating to dates and months. The Mercantile Company at Oil City at that time, I believe, gave me that book. The Pine Island Mercantile Company, I believe, was the name in the early days. I made all of the entries appearing in this book myself, at the time the labor was performed, there is where I kept my time; each night after I got through I set it down. The dates mentioned in that book are the actual dates that the transactions to which they relate were applied. I was employed and worked there and each night I would set it down.

At the time mentioned in this book, beginning with the first entry of December 5, 1908, I was helper on a drilling rig, roughnecking, for the Caddo Gas & Oil Company, working under Mr. Crawford; he was the driller. I believe Mr. Crawford's initials are J. R., I am not sure; he is sometimes referred to as Slim Crawford. I can't hardly remember the name of the well I was working on at the time of the first entry in this book on December 5, 1908; that was for the Caddo Gas & Oil Company, but I am not sure about the name of the

(Testimony of Walter G. Ray)

well. I worked there until I began working for Mr. Wolfe, when he started to contracting, which was February 9th. Mr. Wolfe started to contracting, and I went to Vivian, Louisiana, and started to work for Mr. Wolfe on February 9, 1909, on Powell No. 1 well. It was out from Vivian, I guess, about two miles; I guess you would call it south or southwest. I still roughnecked out there for Mr. Wolfe on that well. I don't know how long I worked on Powell No. 1 by reference to this engineers time book; I can't hardly tell there. My recollection was about thirty days, usually on a well, only drill them between a thousand and eleven hundred feet and it didn't usually take long to do that. You see, I continued working for him steady there practically all of that year, right in that vicinity.

Q Now, you remember whether or not Powell No. 1 well was cemented.

A Yes, sir, it was cemented.

MR. LYON: That is objected to as grossly leading and suggestive, and I move to strike the answer out on the ground that the witness answered the question before counsel had an opportunity to make an objection.

THE WITNESS: I am familiar with the process known as oil well cementing; we cemented a lot of oil wells. I have been familiar with the process since Powell No. 1; that was my first cement job I helped out on in this district. I helped cement Powell No. 1 well. We siphoned that down on the outside. We just cemented the surface casing. The ten-inch, I don't remember how much but very little, we siphoned that down by putting the cement on the outside. We put our casing on bot-

(Testimony of Walter G. Ray)

tom and changed the water up and circulated it and then we put the cement on the outside and let it sink down until we thought it was on bottom, and set the casing on bottom. I can't tell the exact date of that job of surface cementing, but it was several days after I started work there; it took them, as well as I can remember, three or four days to rig up, and about one day to drill down and set the surface casing. Referring to my record book it would be approximately about between the 12th and 14th of February, 1909.

Referring to the other job of cementing the lower casing, I haven't no dates on that, but I know it didn't take us over thirty or forty days to complete the well. It was sometime in March, I don't know the date, but it was in March, 1909. We got the casing seat, I don't remember exactly what depth, but it was between 900 and 1050, I don't remember the depth; it was a shallow well, between 900 and 1050, I don't remember the exact depth; and we run our casing in and put our swivel on and got our circulation with the pump, and we pumped it, I guess, an hour. Then we set our casing on bottom and put a small bit in the drill stem and drove some wooden plugs in there and plugged this bit so there wouldn't be any hole in it, and run it down 400 or 500 feet in the casing, displacing the mud on the inside, then pulled this drill stem out and mixed our cement and poured it in. Then we made a plug, I suppose it was 12 or 15 inches long, I don't remember the exact length, and put this plug in, and I asked Mr. Crawford, "What is the idea, how are you ever going to be able to drill that out?" and he said that was Mr. McCann's way of cementing,

(Testimony of Walter G. Ray)

and he had been doing that and had done it very successfully.

MR. LYON: I object to the testimony about what was said about what somebody else did as hearsay, no foundation being laid.

THE WITNESS: And so after we got the cement in we put the plug in, put some shale on top in sacks, and screwed our swivel back onto the casing; then we rested it off bottom just enough to get good free circulation, I suppose eight or ten inches, then started the pump and pumped it down until the plug shut the pump off, when it hit bottom, and then we set our casing back on bottom. We were undecided whether we were really on bottom or not, so we took the swivel off and run our steel line—put a weight on the steel line and run it down, and then we put our swivel back on and left the well and called it a job.

Q Did you know at that time what this plug was used for and how it operated?

MR. LYON: That is objected to as calling for a conclusion of the witness, and as incompetent.

A No, sir, I did not. Mr. Crawford explained that, though, when I asked him. That is the first time I had ever seen it done. On that particular job, that was the first I saw of the plug being used, then I asked Mr. Crawford how he would drill that out, and he said Mr. McCann had been using it, and it was a success—

MR. LYON: Same objection as to what somebody else told him; it is hearsay as to what anybody else has done.

(Testimony of Walter G. Ray)

THE WITNESS: Said we could drill it out, so we went ahead and set the well in that way, and that is about all I know about it.

Q BY MR. WESTALL: Now, was there anything about this system of cementing that would impress itself upon your mind and make you remember the circumstances particularly, and if so please state what it was?

MR. LYON: That is objected to as incompetent, irrelevant, an improper method of proof, and leading and suggestive, and calling for the conclusion of the witness.

Q BY MR. WESTALL: That is to say, state fully the circumstances, if any, that would impress the memory of the process on your mind at that time.

MR. LYON: Same objection.

Q BY MR. WESTALL: You have already referred to the method you used, and I now simply ask you to explain why you can remember that.

MR. LYON: Same objection, and the further objection is made that it is assuming a fact not testified to by the witness.

A Well, I don't know any more only he told me that he got this information from Mr. McCann, and that he had been using this plug successfully.

MR. LYON: I move to strike out the answer of the witness as to what somebody else told him as purely hearsay.

(“Engineers Time Book” referred to received in evidence as Defendant’s Exhibit 2, Ray Time Book.)

Q BY MR. WESTALL: Now do you know how the plug was used and how it operated in the cementing of Powell No. 1 well?

(Testimony of Walter G. Ray)

MR. LYON: That is objected to as having been shown to be not in the mind of the witness, as indicated by his former testimony, and as incompetent, calling for a mere condition of the mind of the witness and not evidence.

A Well, I know how it operated. Forced the cement down through the casing to the outside; when the plug hit the bottom it demonstrated all of the cement was on the outside, and we set the casing back on bottom. It demonstrated that the cement was in the proper position because it stopped the pump, stopped the circulation.

Q You have used the word "circulation." What do you understand by securing circulation and when it is used?

A When you get your casing on bottom you put your swivel on the casing and circulate down through the inside of the casing around the outside to be sure it is good and free, so that your plug will go down easier; wash all the shale and things out of the inside of the pipe. When you get through with the job of cementing your plug is on bottom, and the cement is around the outside of the casing, not on the inside. You have forced the cement on the outside; it is full of mud on the inside. The casing is full of mud above the plug after it reaches bottom, and the cement is pushed out on the outside of the casing.

Q Now, after that job of cementing Powell No. 1, that you have just described, what other experience did you have with the use of any kind of a plug in cementing oil wells?

MR. LYON: Objected to as assuming a fact not testified to by the witness.

(Testimony of Walter G. Ray)

A Well, we moved off onto another well on a negro's farm by the name of Blackmon, Blackmon No. 1, and drilled that and cemented it the same way. I cannot tell the date of cementing Blackmon No. 1 well by reference to Defendant's Exhibit 2, my time book, but it was in the spring and was still cool, I know. As well as I can remember, it was the latter part of April, 1909. That well was cemented the same as Powell No. 1 with the exception I remember there we were looking for something to go on top of the plug in order to stop the pump quicker when it hit bottom. It was kind of bad weather, and I had on an old rain coat—we called them slickers, and we cut the tail off of that rain coat, and folded it up and nailed it on top of this plug on Blackmon No. 1 to be sure the pump would stop when it hit bottom, and then we put some sacks of shale on top of that. Now, outside of that that well was cemented the same as Powell No. 1. Mr. Crawford was still the driller there. As to who was present at the time of cementing Powell No. 1, Mr. Crawford was the driller, he was present, and that is about all I know of for sure, with the exception of one man that is dead, Mr. Grosh; he is dead.

Q There were others present?

A There were others present.

MR. LYON: That is objected to as leading and suggestive, and we call the Court's attention to the fact that the witness answered the question before we had an opportunity to object.

THE WITNESS: At Blackmon No. 1 Mr. Crawford was present, and Mr. Rowe, Bill Rowe they called him—I believe his initials were W. H. He is in here quite

(Testimony of Walter G. Ray)

often, he is connected with the Rowe-Daniels Petroleum Company with head offices in Dallas.

After that time we continued to use the plug and pumping through our casing right along, and have ever since. We moved from there over to Mr. Joe Childs' property, which is just the adjoining property to the Blackmon farm, and drilled two or three wells there on the Childs place; Childs No. 1 and 2,—I don't remember the number of wells, but two or three Childs wells.

The method of cementing Powell No. 1 and Blackmon No. 1 and these wells that followed was successful. It cut off the water. Powell No. 1 was a big gas well, and Blackmon No. 1 was the first oil well in the shallow field up there. The only interest I had in the cementing operation at the time I first observed it in connection with Powell No. 1 was in this way: Mr. Crawford told me if I would stay with him and take an interest he would make a driller out of me, so I was watching every chance in order to learn everything I could, and learn to be a driller, which he did, he gave me a drilling job sixteen or eighteen months after that. Besides Mr. Crawford I talked to Mr. Walter George, Mr. Hearne Harper and Mr. Rowe about that method of cementing, and we all discussed it quite a lot.

Q Did Mr. Harper know of the process at that time according to what he said?

MR. LYON: That is objected to as calling for the conclusion of the witness, and as incompetent.

A Yes, sir, he knew all about it, he said, I remember he told me he had used it before we had.

(Testimony of Walter G. Ray)

MR. LYON: Now I move to strike the last part of the answer starting with "I remember," on the ground that it was volunteered and is hearsay.

MR. WESTALL: We will state the purpose of the evidence is to prove a general common knowledge of a matter of public and general interest, and as no doubt counsel will remember, that is one of the exceptions to the reception of hearsay evidence. Hearsay evidence is proper for such purpose.

Q Now, do you know from these conversations that you had with the men whom you have named, anything as to the general nature of the knowledge of that process throughout the field among the men who were cementing wells at that time?

MR. LYON: That is objected to as incompetent, and not the proper method of proof.

A Well, they discussed it freely and there was a number of them inquired as to where that originated, the plug I mean, using the plug and they would call it the McCann type of cementing—it was Harper & McCann at that time and they all thought very well of it.

MR. LYON: I move to strike out the last part of the answer as incompetent, not the proper method of proof, volunteered and no foundation laid.

ON CROSS EXAMINATION Mr. Ray testifies:

I have no interest whatever in the outcome of this suit. I have not been notified that I will be sued for infringement of this patent. I have heard some of my associates say they were so notified. I don't remember, I think Mr. Crawford did. I am not sure though, but two or three of them.

(Testimony of Walter G. Ray)

Q Are you a member of the Louisiana Branch of the Mid-Continent Oil & Gas Association that is interested in the defense of this suit, and which is offering this evidence in its defense in Louisiana?

MR. WESTALL: I object to the question on the ground that it calls obviously for hearsay evidence. The witness should first be qualified to find out whether he knows anything about it.

A I am a member of the Mid-Continent, yes, but I was not aware of the fact that they were taking any hand in this suit. I was not aware of it at any time.

Mr. Crawford and I often discussed this matter; I saw a notice of it in the paper, I don't know when, at different times, and also in the Oil Weekly. I didn't say I saw the article in the paper about it before I discussed it with anybody. I don't remember how the conversation came up. I don't remember where it was, or who it was with. I don't remember what all Mr. Crawford said, but I have discussed it in different ways and different places so many different times I don't remember any certain name or certain place. I have not discussed in particular this special job with Mr. Crawford and Mr. Wolfe and others who are to appear here and testify. I discussed about this patent business and so on, and about the Powell well. After Mr. Wolfe first started to contracting we have often discussed about his first venture as a contractor and the matter of his first job with me. They were aware that that was the first well I used it on at all, and we talked of the first well that we used it on.

Q Why did you discuss the patent, what interest did you have in the patent?

(Testimony of Walter G. Ray)

MR. WESTALL: I would like to suggest that this is improper cross examination, irrelevant, and has nothing to do with the issues involved.

A Well, I didn't have any that I know of at that time, but there were several of them asked me about it, Mr. Crawford and Mr. Holcomb and several others knew that I was among the first that began work in the Caddo field, and asked me about it.

I have been cementing wells in the last six years in this territory using this method.

Q And did you not understand that if this patent is valid you are infringing on the patent in so doing?

MR. WESTALL: I object to that as calling for a conclusion of the witness, and the question assumes that the witness knows what constitutes an infringement and liability, and I instruct the witness that he need not answer such question, and I also advise the witness that he is not compelled to give any evidence which might subject himself to any charge of infringement.

A Well, if I was infringing I didn't know it.

Q BY MR. LYON: That is not an answer to the question. I asked you whether you now understand if this patent is held valid your cementing wells with this process during the last six years constitutes an infringement of the patent here in suit and renders you liable for a money judgment?

MR. WESTALL: We urge the same objection. It calls for a double legal conclusion, first as to the question of liability and secondly the question of infringement. We urge the further objection now that it is incompetent, irrelevant, and immaterial, and not proper cross-examination.

(Testimony of Walter G. Ray)

A Well, as to that end of it I don't pay any attention to it. I always take that up with my attorneys and let them handle it.

Q BY MR. LYON: Will you please answer the question, which was whether or not you now know or think that you will be liable for damages for infringing this patent if this patent is held valid; state what your belief is on that matter, or your understanding, if you have any?

MR. WESTALL: I object to any understanding or belief.

THE WITNESS: I consider I have answered the question. I have not taken the matter up with my attorney as to whether I am liable or not if this patent is valid for my cementing operations here in the last six years, but I have attorneys employed for that purpose. I have not been advised directly by these attorneys that I am liable if this patent is held valid, and not indirectly so advised, only in hearing different fellows talk and in a general way I have understood it, and that we wasn't liable here as we had been using it so long. If the Court should decide that this patent is valid, I do not understand that I am liable. I don't remember who told me that, no certain one. I don't remember who I talked to about this matter for sure, only I remember Mr. Crawford and one or two others. I don't know what Mr. Crawford said, and I don't remember where he said it either, and I don't remember what it was.

Q But you have been using this process without any license from the Perkins people or their licensee in this territory within the last six years, have you not?

(Testimony of Walter G. Ray)

THE WITNESS: We have used it since Powell No. 1. We have been cementing by it since 1909, every well we have cemented, every well I have worked on.

Childs Well No. 1 was for the Vivian Oil Company, as I understood it. I don't remember the exact date, but it was after Blackmon No. 1. We went right over from Blackmon No. 1 to Childs. The only one I particular remember as being on that well besides myself at the time it was cemented was Mr. Crawford, the driller. We went right ahead there on the Childs lease, and I don't know for sure, but I think we called the next one No. 2. I did not work on any wells for the Gulf Company at that time. Several years later I did. I don't know for sure how much later; I don't know the dates I was a driller—after I got to be a driller I drilled for the Gulf some. I don't remember that I ever worked for Slim Crawford when he was drilling for the Gulf. I would not say I did not, because that has been so long ago and I worked for so many different drillers I couldn't say. I don't remember drilling any well for the Gulf on the Childs lease. Along in February and March, 1909, the Wolfe Company only run one rig. I couldn't tell you when he got another, because he bought several; I don't remember whether that was in 1909 or 1910. I couldn't say for sure how long I worked with Mr. Crawford, but I worked for him several months. That is the best answer I can give; that has been some time ago and I would not attempt to give the exact dates or months.

I don't remember if I worked on Carter No. 2 well that was drilled by Mr. Crawford. I don't remember a well by that name. I did not work on any wells for Mr.

(Testimony of Walter G. Ray)

Crawford that were drilled for the Arkansas Natural Gas Company that I remember. I am not sure, but I don't remember working on any.

I drilled for Wolfe between five and six years. There were wells drilled by the Wolfe Drilling Company during that six years with this process I have described. It would be hard to say what wells I worked on, because I drilled I guess—oh, a bunch of wells up there, drilled practically one every thirty days, and I worked for him five or six years, and all that I worked on were cemented that way. The rig that I worked on did not drill any wells for the Sun Company.

Q What were the wells you used this process you described on?

A Well, let's see, Powell and Blackmon—I am not sure what the name of the other well was, because it might be he had more than one rig at that time, but I know that we moved from the Blackmon to the Childs lease and run our rig there. It might be one of his other rigs drilled one—I don't know how long I was on the Childs lease; we drilled two or three. I don't know whether logs were kept of those wells or not; it wasn't my business to keep logs. I don't know where they are. I was a helper only, working there on the job. I couldn't say for sure what company owned these wells or what company they were being drilled for; they called it at that time, as well as I remember, the Vivian Oil Company. I couldn't say when we finished on these Childs wells. It wasn't any two years; we moved right over from the Blackmon well, and we were drilling wells in thirty to forty days there. It took thirty to forty days

(Testimony of Walter G. Ray)

on a well to cement and finish them. I don't know whether there was two or three wells there. I don't remember where I did go then, but I think I went over in the direction of Hosston, I believe on the Jolley place; we moved over in that direction, I believe. I don't know whether that Jolley well was drilled for Mr. Gant or not. I did not go with Mr. Crawford to the Gulf Company at all. I don't remember who was present on that Jolley well or the Jolley lease when we cemented that one. I was on the last well on the Childs lease; I was working for Mr. Lem Felts; Mr. Crawford had gone some place, I don't remember when or where. It was two or three months later. Mr. Felts and Mr. Row are the only ones I remember of being present when that well on the Childs lease was cemented; there were others there; there was a regular crew; I believe we used five men besides the driller. I can only remember Mr. Rowe and Mr. Felts.

I did not drill any wells for the Pure Oil Company that I remember. I wouldn't state positively, because I drilled for so many different companies I don't remember them all.

Q Well, name us a well that you cemented by this method in 1910, giving us the location of the well, the date the well was cemented, who it was cemented for, and who was present.

A I wouldn't attempt to do that, because we drilled so many I wouldn't know the exact date unless I had refreshed my memory from some record. I worked on some Stiles wells but I don't remember the numbers or the dates. I don't remember that I worked on Stiles 14; I don't remember it. I am not sure, but I don't think

(Testimony of Hearne Harper)

I did. I do not know when that well was drilled. I couldn't say whether it was before or after the wells I remember working on the Stiles lease. I couldn't tell you when I drilled the wells on the Stiles lease.

TESTIMONY OF HEARNE HARPER, FOR DEFENDANT.

HEARNE HARPER,

called on Behalf of defendant, duly sworn, testifies:

My name is W. H. Harper; my residence is El Dorado, Arkansas. I am an oil well contractor and producer. I have been contracting since 1905. In 1905 I was at Humble, Texas, in the contracting business, connected with House & Beatty. I worked in Humble until December, 1906, and then I moved a drilling rig to Mooringsport, Louisiana. That was in December, 1906. After that up to the present time I have contracted to drill wells in Louisiana and Arkansas. Since that time I have been in Shreveport, with headquarters for a long time. Since being in or near Shreveport J. B. McCann was a partner of mine. I don't remember just when we did get our charter, but along about 1908 I believe it was. The business of McCann & Harper was that of contracting and drilling wells. We would go out and take a contract from an oil company or gas company to drill them a well for oil or gas, and then perform the operations necessary to drilling and completing the well. That would include making a certain amount of hole and setting the casing and drilling it in. We set casing—say that the gas sand would be a thousand feet, you would make a thou-

(Testimony of Hearne Harper)

sand feet of hole and put your casing in there and cement it or put a rubber packer on it, and then later go inside of that and drill into the sand and bail it, pull your drill stem out, and call it a well if you have any oil or gas.

The first wells we cemented would be in 1907. We still use it up to this time. So since the time I have mentioned up to the present time we have been cementing wells at various times. In 1908 and 1909 sometimes we would take and pour cement for the first string casing, 10-inch, pour cement around the outside, a few sacks, and then we set a longer string say inside six or eight hundred feet or a thousand feet, we would run our drill stem down inside of that and run some cement through it, pull the pipe out and finish filling the well up with water, connect the swivel on it and pump it behind it. We would do that at times, and then I have cemented wells by using sacks and plugs to pump the cement around the casing.

Mr. McCann was my partner in 1908 and 1909. Mr. McCann has been dead about three years.

Q Now, you mentioned the use of sacks in cementing, and I believe you also referred to the use of a plug. What were these sacks or plugs used for?

A Well, we put them in there to keep the mud and cement from mixing. Some places we used them to shut the mud off so we would know that we had the cement in the bottom of the hole and up around the casing.

As to wells we cemented in 1908, I believe we drilled the Childs well in 1908 near Vivian. In 1909 we drilled wells on the Jolley farm, we drilled wells on the Christian farm, and I believe we drilled a well in Oil City

(Testimony of Hearne Harper)

known as the Richardson well. We had several rigs running—we had two rigs running at that time, I think. The first well in this field that I remember having cemented is Hostetter No. 1, which was drilled right near Mooringsport, Louisiana.

Q And when was that well cemented, approximately?

A That was the first well I ever drilled in Louisiana, that was along in January, I believe, 1907. We have been discussing this cementing proposition here recently in regards to this lawsuit, and I have looked up records on it—of course I cemented a well two or three months ago, and if you want to know about what time—do you want to know about what wells? I have some records, if I could get that that would give us the date of all the wells I have been drilling. I have drilled right on ever since 1907 up to date. We made a contract to drill a well for Mr. D. C. Richardson in 1908. I believe I could determine approximately the date of those operations by reference to that contract.

Q Is this a certified copy of the contract (handing document to witness)?

MR. LYON: I object to that as incompetent, irrelevant, not the proper method of proof, leading and suggestive.

A Well, we drilled a well for D. C. Richardson in 1908, and the best I can remember it was in the fall, and this contract shows in December, and that is the best way I have to get at it.

MR. LYON: Now we move to strike the testimony of the witness in regard to the date of this well as in-

(Testimony of Hearne Harper)

competent, no foundation laid, and not the proper method of proof.

MR. WESTALL: The contract is merely referred to by the witness as any guide, note or memorandum to enable him to fix the date.

MR. LYON: We renew the same objection.

Q BY MR. WESTALL: With your memory refreshed by reference to the certified copy of the contract before you, can you now state approximately when it was that well was cemented, from your recollection?

MR. LYON: Objected to as assuming a fact that is based upon an incompetent answer of the witness.

A One reason I can remember about that well is I think it is the only well that was ever shot with nitroglycerin to try to make it produce oil in the Caddo oil field.

Q BY MR. WESTALL: Now, you have mentioned certain records of cementing wells. Have you ever had a complete record showing the dates and times of the operations on the various wells that were cemented by you or worked upon by you in 1908 and 1909?

A Well, it is a practise of all oil people to keep what we call a log of the well we drill, and we keep the date we start out and the date we complete it, and we keep that for all of the wells that are drilled. I kept a record in our books. We would give the township and range, where it was, the man we drilled it for and the depth of the well, and how much casing was set in it, and the date of the completion and the formation which we went through. When we went through shale we put down a hundred feet or so much shale or so much rock

(Testimony of Hearne Harper)

or whatever it was we were going through; we put that down and I kept this for some time.

Q And did you mention in that record whether the well was cemented and how it was cemented?

MR. LYON: That is objected to as incompetent and secondary evidence. The record speaks for itself.

MR. WESTALL: It iss my purpose to lay the foundation for the introduction of secondary evidence. I am asking the nature of the record.

MR. LYON: Same objection.

A No, I didn't go into all of the details. The first wells we drilled in Caddo we kept them on two little red books, and it was kept up by E. F. Steward, who was associated with us in a way. Mr. Steward has been dead for about four years. I had a book we kept the records in in 1909 until I got it full from the drilling operations, and I opened up another about 1910, and it has gotten misplaced by, I think it was Mr. Snyder, John Y. Snyder, or C. W. Robinson; they probably have the book, or should have it. The last time I remember seeing it I let them have it to copy the logs from it. I don't know as C. W. Robinson and John Snyder are partners, but they exchange logs with each other. It is the custom in the oil fields for us to exchange logs, if one has a log we let the other parties have them so they can make a copy, and in that way they misplaced this book that had the record of these wells I drilled.

MR. LYON: I object to that as a conclusion of the witness, no foundation laid.

THE WITNESS: John W. Snyder is here in Shreveport now. He is an oil producer and geologist. C. W.

(Testimony of Hearne Harper)

Robinson lives here; he is in the oil business; he buys leases and keeps up with the wells drilling throughout the country.

Q Have you inquired of John Snyder and Mr. Robinson where that record book for 1908 and 1909 is?

MR. LYON: That is objected to as incompetent, not the proper method of proof.

A Yes, I went to their office to see if I could locate it and they said they had misplaced it. I believe that was last Friday.

MR. LYON: I move to strike that portion of the answer of the witness which purports to state what somebody else told him, as hearsay.

THE WITNESS: I have asked the man that kept books for me by the name of I. J. Brook, he worked for me about three years, and he don't know anything about it—don't know what has become of it, he remembers the book and knows I had logs of the wells I drilled in the early days in the Caddo field in it.

Q Do you know whether there were any copies made of that record?

MR. LYON: Objected to as no foundation laid, and incompetent, and no foundation laid for secondary evidence.

MR. WESTALL: The purpose of this examination is to lay the foundation by *show* that every reasonable search has been made, and we will produce other witnesses showing what became of that original record, and then I propose to introduce a duly verified copy in evidence.

(Testimony of Hearne Harper)

MR. LYON: Our objection was to this particular question.

MR. WESTALL: Yes; but I just stated that is a preliminary to our proof which will be later produced.

MR. LYON: Same objection.

A They were made and are in C. W. Robinson's office. Mrs. Newcombe, I believe, is her name has them.

MR. LYON: I object to the witness testifying to something that has only been told him, as hearsay and incompetent, and move to strike it from the record, no foundation laid.

THE WITNESS: I do not know what Mrs. Newcombe's first name is, but I am acquainted with her and have been in the office and looked over these logs, went over them with her.

MR. LYON: Same objection, and I move to strike out the answer as volunteered, no question having been asked which would elicit such answer.

THE WITNESS: Mr. John Snyder has offices in what is known as the Merchant's Building here. His name is on the directory. Mr. Robinson has an office in the same building. Both of these men live in Shreveport. Mr. I. J. Brook is working for the city of Shreveport. Mrs. Newcombe is in Mr. John Snyder's office.

Q Now, you have spoken of a copy that was made of this record in 1908 and 1909. Will you please state the kind of copy and how it was gotten up, and whatever facts relevant to the nature of that copy that you can?

MR. LYON: That is objected to as assuming a fact not in the testimony or of record in the testimony of this or any other witness in this case, and further objection

(Testimony of Hearne Harper)

is made to the witness testifying as to matters of which he has only hearsay knowledge; no foundation laid.

THE WITNESS: Mrs. Newcombe made that copy to get the logs of all of the North Louisiana and South Arkansas fields and she made a book out of all these logs, which she sells for \$1,000. She sells the book. I don't know whether the book is a copyrighted book or not, but that is what she asked me for it, a thousand dollars, said she was selling them.

Q Have you seen that book?

MR. LYON: Objected to as incompetent, no foundation laid, irrelevant and immaterial, not the proper method of proof.

A Yes, I saw the book.

Q BY MR. WESTALL: And does it contain, so far as you were able to determine, copies of the logs of the various wells that you worked on in 1908 and 1909?

MR. LYON: That is objected to as incompetent, not the proper method of proof, and the record will speak for itself if it is a record, and this witness cannot testify as to its contents.

A It has the logs and records of a great many wells I drilled in 1907 and '8 and '9 and '10.

Q BY MR. WESTALL: Now, by referring to that record, assuming for the moment that it correctly gives the dates, could you give the approximate dates of cementing operations on various wells that you have referred to?

A No, I can't—by getting that record I can refresh my memory on it, and also I would have to have contracts I made with D. C. Richardson and the Busch-

(Testimony of Hearne Harper)

Everett Oil Company. We made a contract to drill wells for them.

Q Is that the contract you last referred to here, which I have not yet offered in evidence, namely, contract between the Richardson Oil Company and McCann & Harper?

A Yes, sir, that was one of them. There are no other contracts; this is it.

MR. WESTALL: At this time we offer in evidence the contract last referred to by the witness, or a certified copy thereof, as defendant's Exhibit No. 3, Richardson-Harper Contract.

MR. LYON: Objected to as incompetent, irrelevant, immaterial, no foundation laid, not the proper method of proof, secondary and not the best evidence, and no ground laid for the introduction of secondary evidence.

MR. WESTALL: The copy is a certified copy from the records here as counsel will see, and is only offered in evidence as a guide or memorandum or document by which the witness refreshes his memory.

MR. LYON: Objected to as not properly proven, as not evidence in this case, and not properly certified, has no effect whatever in this case, and the further objection is made that it is not such a document as a witness may lawfully refer to to refresh his recollection.

(Document marked Defendant's Exhibit No. 3, Richardson-Harper Contract.)

Q BY MR. WESTALL: Now, by referring to this book, assuming that the same is a true copy—

MR. LYON: We object to any reference to the book by this witness; the book will speak for itself, and it is

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not here, and if the witness has referred to this book for the purpose of refreshing his recollection we ask that it be brought here and handed to us for examination, which we are entitled to have. He said he refreshed his recollection from the book, and we now demand the production of the book at this time, which he used to refresh his recollection from.

MR. WESTALL: We call counsel's attention to the fact that we had not asked any question before he made an objection.

MR. LYON: Well, you started out by referring to the book and I intend for my objection to have reference to any answer, question or testimony that has any connection or reference or touches in anyway on the question of the book the witness has referred to, and which he says he cannot give his testimony except as his recollection is refreshed by that book, and we now ask that he produce that book at this time. This objection and demand for production of the book is without waiver in any manner of our objection to the book itself as incompetent, irrelevant, and improper for the purpose of refreshing his recollection, and without waiving any rights we have under these objections we demand production of the book in order that we might proceed subject to our objection.

MR. WESTALL: May I ask Counsel if he is willing to advance a thousand dollars to pay for a copy.

MR. LYON: I certainly will not but the witness has no right to refresh his recollection with something which he cannot produce upon demand of the party wishing to cross-examine.

(Testimony of Hearne Harper)

Q BY MR. WESTALL: I wish you would describe the methods used in cementing wells—the method or methods—in 1908 and 1909, prior to October 1, 1919.

MR. LYON: This is all subject to our objection of record that this testimony cannot be introduced until the witness has produced the document or alleged book from which he has stated he has refreshed his recollection as the basis for this testimony, and we will now give counsel notice that we will move to strike out all the testimony of the witness relative to these matters if such book is not produced.

Q BY MR. WESTALL: Are you familiar with the processes of cementing that were used in 1908 and '9?

MR. LYON: We repeat our objections and protest and again demand that before any further testimony be taken or any other attempt is made to take it, that the witness produce the alleged document which he states he used to refresh his recollection by for the purpose of our inspection so that we may cross-examine him, all of these objections, protests and demands being made, of course, subject to our objection to the document itself.

THE WITNESS: I was cementing and drilling wells in 1908 and I am familiar with the way we cemented them.

Q Will you please describe the methods to your knowledge and according to your recollection that were used in cementing wells in 1908 and 1909, and if there was more than one method, please describe them?

MR. LYON: Same objection and protest and demand and motion to strike out the answer of the wit-

(Testimony of Hearne Harper)

ness and any other answers given in this record over our protest and demand.

MR. WESTALL: In order to save time we will stipulate that this same objection, protest and demand and argument may be considered as renewed after each and every question, whether the same is made or not. You can make your motion to strike and state your reasons.

MR. LYON: We move to strike the answers of the witness given since the reference to the alleged book by which the witness states he has refreshed his recollection, on the ground that before any further proceedings in this deposition are taken we are entitled to have that alleged book produced for our inspection and also on the ground that the testimony based thereon is irrelevant and incompetent.

(Adjournment until two o'clock p. m.)

THE WITNESS: Since adjournment I have been able to produce the records which were the subject of all of the discussion this morning.

Q Are these the records that you referred to as comprising or being a part of the book which Mrs. Newcombe was selling for \$1000?

MR. LYON: Objected to as incompetent, irrelevant, and immaterial, and also as merely fragmentary.

MR. WESTALL: Let the record show the witness refers to two large loose leaf books with approximately 11 by 9½ inch paper in typewriting, and which are six inches thick and which are marked with the name "John Y. Snyder, Shreveport," on the cover.

Q Now please state what is shown in a general way by these records which I just last referred to.

(Testimony of Hearne Harper)

MR. LYON: Objected to as incompetent, the records speak for themselves, and no foundation laid for the records whatever, and at this time for the purpose of preserving the record and identifying the books, and subject to our objections and subject to proof of the authenticity of these records and subject to foundation being laid therefor, I ask that the same be marked by the Notary as exhibits in this case.

MR. WESTALL: I will state to counsel that it is not the intention or purpose of the defendant to offer these books in evidence. They are merely to be referred to as memoranda by which to refresh the memory of the witness and after referring to the date shown to more definitely fix certain dates, after which they are to be returned to the party from whom they were borrowed.

MR. LYON: We object to the procedure as outlined by counsel as not the proper method of proof, and in order to preserve the record we at this time offer the same as part of the record as Plaintiff's Exhibit 3, and ask that they be marked accordingly and taken charge of by the Notary and returned to the United States District Court for the Southern District of California.

There is no need of subpoenaing the record as the records are here and have been referred to in this case and are now before the Notary and as the law is clear if the parties for whom the witness appears refuses or fails to offer in evidence by which a witness refreshes his recollection the opposing party may do so for the purpose of preserving the record and I therefore, request the Notary at this time to make the document accord-

(Testimony of Hearne Harper)

ingly and return the same with this deposition as part of the records in this case to the United States District Court for the Southern District of California.

MR. WESTALL: I think I have already made it clear enough to counsel that the records will not be permitted to be marked by the Notary and if counsel wishes them in the record he will have to subpoena the owner of the record and pay him a Thousand (\$1000.00) Dollars apiece for them and then introduce them himself.

MR. LYON: Do you refuse to permit us to examine the records?

MR. WESTALL: I have already permitted you and you have spent a considerable length of time examining the records already.

MR. LYON: That is untrue. These records were brought into this room some five minutes ago and they are, as you state, six inches thick and we did not examine them any more than from looking at them from the outside. I want an opportunity to make a thorough examination and if you care to assume the responsibility for obstructing the processes of the Court and for obstructing the Notary from marking the books we will have to proceed accordingly, but we protest most most violently against any such action and again request the Notary as the books are here and as a subpoena is only necessary in order that the book may be produced and as the witness has referred to these books I now ask the Notary to mark the same in accordance with our request and retain and return the same as part of the record in this case. The duties of the Notary are clear. If anyone else makes any claim against them they can do

(Testimony of Hearne Harper)

so in another proceeding, but they are here as part of this record and have been referred to as such and as far as ownership the United States District Court for the Southern District of California has a paramount right to the custody of these records at this time as they are here and I again ask the Notary to mark them, retain them and return them to the United States District Court for the Southern District of California in accordance with our request.

MR. WESTALL: Counsel has made his request about four times now I think and that should be sufficient and I have stated the defendant's position in regard to them. I will state further that these records, when piled one upon another, are fully six inches thick containing thousands of pages and we only intend to refer to just a very few dates in certain years in these books. There will probably not be more than just a few of these logs referred to and then for no other purpose than to fix a date. It would be totally unreasonable to even suggest depriving the owner of his records just for the purpose of fixing a due date to refresh the witness' memory and we will therefore proceed and counsel may take whatever course he desires when he gets before the Court.

MR. LYON: I ask the Notary to mark the books and return them to the Southern District—to the United States District Court for the Southern District of California or we will have to take steps to have the Court to refuse to recognize the certificate and return of this Notary on the ground that he has not performed his duties in accordance with the duties imposed upon him as such officer and under the rules of the Court for which he performs and acts.

(Testimony of Hearne Harper)

MR. WESTALL: We have no desire at all to put in thousands and thousands of pages—

MR. LYON (Interrupting): But we have the right to have the record—

MR. WESTALL (Interrupting): Wait a minute. We have no desire at all to put in thousands and thousands of pages as an exhibit, the vast majority of which have no reference and could have no possible bearing whatsoever in any issue in this case and if counsel wishes to do so he can put them in by buying them himself and offering them at the proper time but we will refer to certain particular pages and those only and we call counsel's attention to the fact that he has for the third time or fourth time perhaps stated what he is going to do and instructed the Notary and we insist now that he permit us to proceed without any further interruption.

MR. LYON: We will state at this time we have the right to have the entire record before the Court who may examine it in its entirety and not just fragments. This demand being made, of course, subject to our previous objections noted in the record; and at this time we demand an opportunity to inspect these records which the witness has now produced—we have not had an opportunity to examine the same and if counsel disputes that fact we will ask the Notary to note the time at which these proceedings commenced and the time it is now and we call the Court's attention to the fact that there has not been any opportunity given since these records were brought in for us to examine them.

MR. WESTALL: The books are here for examination of counsel. We object to wasting time by counsel

(Testimony of Hearne Harper)

examining thousands and thousands of pages of records and logs which have no possible pertinence to this controversy, consequently we will permit a full examination by counsel of any part of the record referred to and we further state that counsel knows where the records are, that they are kept in the possession of Mr. John Y. Snyder and if he wants any access to them he can go there and look at the other parts.

MR. LYON: We have the right to examine them at this time to see what parts may conflict with other parts and we stand on that right and request counsel to permit us time to examine these records before he goes any further with the examination of this witness.

(Whereupon Mr Lyon reached over the table and picked up the two books in controversy, he taking one and Mr. Halliburton the other.)

MR. WESTALL: Please let the record show that Mr. Lyon has availed himself of the records by taking possession of them and he and Mr. Halliburton have the records before them and they are making examination which he requested.

MR. LYON: We will then ask that you suspend your examination until we can look at them.

MR. WESTALL: How long do you want?

MR. LYON: I don't know, I can't tell anything about them until I see them.

MR. WESTALL: Very well, we will suspend the examination until a reasonable time has elapsed for them to examine the record.

(At 3:15 p. m. the taking of the deposition was suspended until 3:50 p. m., during which time Mr. Lyon and Mr. Halliburton examined the records in question.)

(Testimony of Hearne Harper)

MR. WESTALL: Let the record show that after an examination of the records referred to which counsel says is partial, lasting from 3:15 o'clock to 3:50 o'clock, counsel suggests that we proceed at this time with the examination of the witness, and that we meet up here earlier tomorrow morning, when he will make a more thorough examination of the same.

Q Mr. Harper, have you made any further efforts to find the original records you referred to this morning in which logs and data respecting wells which McCann & Harper drilled in 1908 and 1909 were kept, and if so please describe what efforts you made?

A At noon I went to John Snyder's office and asked him if he had seen anything of my original record. He said no, and then I got the books that they had there of the logs which they had copied from my originals—

MR. LYON: I move to strike out the last part of the answer as a conclusion of the witness, no foundation being laid, irrelevant and incompetent.

THE WITNESS: Being the two books which counsel has been examining the last half or three quarters of an hour.

MR. LYON: We move to strike out the testimony of the witness in regard to the two volumes referred to by counsel as incompetent, no foundation laid.

THE WITNESS: During the years 1908 and 1909, one of the methods of cementing we used was that we set our casing, 6-inch or 8-inch, which ever it might be, on bottom, connected our swivel and pumped up to it and got circulation, that is, got the pump to running and got all the heavy mud or shale pumped out and everything,

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and then we set back on bottom and went on the inside with the 4-inch drill stem with the pipe open ended. At that time we didn't have any tool joints, and we picked that up off bottom a few feet, picked the 4-inch pipe off the bottom and run our cement down through the inside of the pipe until it got on bottom or near bottom, and then we pulled our 4-inch up out of the hole, connected our swivel to it, put the pump on, and rested it up off bottom just a little bit to get the cement on the outside of the casing, and when we did that then we set it back down on bottom and let it set there for four or five or six days before we drilled in. Then we drilled the cement out. Another process we had when we set our casing—that is the pipe that we leave in the hole that keeps the water out from the oil sand, and we usually set in this country 6-inch and 8-inch. After we got that on bottom we connected our swivel to it and pumped it so that the shale and other foreign stuff would all wash out inside, and the inside would be free and clean, and then we plugged the bottom of our 4-inch pipe and run it in the hole say about three or four hundred feet, whatever amount of cement we are going to use, and then pull it out and that leaves a space inside where we could put our cement, and we would pour in our cement, and on top of that cement we make a plug out of wood or we could make it out of cement sacks rolled up, or we would take sacks and put shale on the inside of them and tied them up. In other words, just anything that would fill up the pipe inside, and after we put that in we connected up our swivel and put the pump on and pumped pressure behind it, and lifted the casing off bottom an inch or two inches

(Testimony of Hearne Harper)

or three, and started to pumping, and we pumped that until that plug hit the bottom of the well after it had forced all of the cement behind the casing, or the most of it, and then it shut the pump off, which shows us or indicates that we have the cement at the proper place. Then we let the casing back on bottom and let it set there six or eight days before we drilled in. Those were the methods that were used through this field—generally used. The casing was not always set on bottom at the time we completed the pumping of the cement.

Q What, if any, method was used to prevent the cement running behind the casing in addition to setting on the bottom?

MR. LYON: Objected to as leading and suggestive, particularly after the former answers of the witness.

A We left our swivel connected to the top of it with the pressure on so it would not come back in.

Q BY MR. WESTALL: And at that time where would the cement be?

A The cement would be on the bottom of the hole around the casing. Inside of the casing would be the plug we put in there and some cement, and above that would be the mud.

Q Can you mention any well or wells which you cemented through casing using the plug?

MR. LYON: I object to this testimony on the ground that it is based upon a refreshing of his recollection by incompetent documents and alleged records which have no foundation, and to which it was incompetent for the witness to refer, which we consider disqualifies the witness as to these facts.

(Testimony of Hearne Harper)

Q BY MR. WESTALL: I am asking you now whether you can, from your own recollection, give the names of the wells that you cemented by this plug method, or at least some of them, in 1909.

MR. LYON: Same objection, the witness having already stated that his recollection was refreshed by this incompetent record.

THE WITNESS: I cemented Christian No. 1 with a plug, but to give the exact date I would have to refer to that book, that is for the month.

Q BY MR. WESTALL: So the purpose of this record is simply to refresh your memory to the exact date?

A Yes, sir. Oh, I know how I cemented the well—

MR. LYON: We again object to the questions being propounded, as incompetent, irrelevant, and not the proper method of proof, referring to incompetent documents upon which the witness states he based his testimony.

THE WITNESS: In 1909 I remember we cemented the Christian well with plugs, but as to that exact date I would have to get that from this book. It was along in the spring time, and if you will let me look through there I can give you the exact date.

Q BY MR. WESTALL: You may refer to the record and give the date, if you can, when Christian No. 1 well was cemented.

MR. LYON: That is objected to as incompetent, not the proper method of proof, and as referring to an alleged record as to which there is no foundation, and which is incompetent for the witness to rely upon or use for the purpose of refreshing his recollection, and I will now

(Testimony of Hearne Harper)

ask the Notary if he will proceed in accordance with my request and mark these volumes that the witness has referred to, in order that the same may be identified and preserved for the record in this case. . . .

I have in my hand one of these two volumes which is lying on the desk in front of the Notary and which has just been completely paged through by the witness in an endeavor to answer the last question. I now repeat my request to the Notary and ask him to mark the same for the record in this case at the plaintiff's request.

MR. WESTALL: And I instruct the Notary that he need not mark it or pay any attention to Counsel's statement. . . . We did not offer it in evidence, and it is not proper evidence, and he has no discretion except to simply put those things in evidence which are proper exhibits in the case, and I take all responsibility for any production or non-production of the documents. . . .

THE NOTARY: I am indicating on the record that I follow the instructions of counsel for the defendant in view of the circumstances, and did not mark the document referred to.

MR. WESTALL: Inasmuch as there are probably several thousand pages in the two records which have been produced, and inasmuch as the witness will be called upon to refer to several of them, and in view of the fact that a search for each one resembles looking for a needle in a haystack, we suggest that we adjourn at this time and allow the witness to go through the records and pick out the particular pages to which he wishes to refer and mark them, and under our agreement counsel will have an opportunity to more thoroughly examine the records in the meantime.

(Testimony of Hearne Harper)

MR. LYON: In doing so it is understood we are reserving our objections to the witness having or to the witness making any reference whatsoever to these documents as incompetent, no foundation having been laid for the documents, and the documents being not of a character which it is permissible for the witness to refer to for the purpose of refreshing his recollection, and that such action of the witness in refreshing his recollection from such documents has disqualified himself as a witness. . . We make the further objection that the witness has not, as shown by the record and according to the statement, refreshed his recollection in fact from these documents, but is rather employing the same in the absence of any recollection of the facts to supplement his testimony relative to these matters, the witness having indicated that he has no recollection except that based upon these records.

(Adjournment to July 2, 1924.)

Shreveport, La., July 2, 1924. 10 A. M.

THE WITNESS: Referring to the system of cementing through the drill stem, after we have made our hole and set our casing in there, we connected the swivel to the casing and got circulation so that all of the shale and sand that is on the inside of the casing is brought out, and then we set the casing on bottom and took the drill stem, the 4-inch drill stem, and took the bit off and run it in open-ended, and put our cement on the inside of the 4-inch pipe, and let it settle on the bottom of the hole, the 4-inch pipe, and when we got it to the bottom we pulled the 4-inch out and connected our swivel to the top

(Testimony of Hearne Harper)

of the casing and lifted it up and pumped the cement around it, around the casing and set it down, and let it set five or six days until it hardened, and then after that is done we drill the well in. We leave the swivel on top of the casing if there were no reasons to take it off.

Q Now, in that method of cementing that you have described, namely, through the drill stem, how would you know that the cement was outside of the casing?

A Well, it was more of guesswork with us, that was just a matter of guesswork, we had nothing to indicate it was there or show us, we just really guessed at it.

The first I remember using that drill stem method of cementing was on what was known as Childs No. 1 or the Broussard; Childs 1, I know it was used there. We didn't have tool joints, just a plain ended pipe, for the drill pipe, and that was four inches in diameter. The date of the cementing of Childs No. 1 through the drill pipe or inside the casing method was in November or December, 1908.

Q Did you ever use any modification of that drill pipe or inside siphon method referred to for cementing wells, by which you might know more definitely when the cement was outside of the casing?

A Well, I might refer to a well I drilled just before that or about the same time over there on what was known as Pardue, well No. 1 on the Pardue, we cemented that different from the other. We made our hole and set our casing, we pumped it until we got circulation, got it clean of the mud on the inside, and I believe we set it down on bottom and took the bailing line and bailed the casing dry, and after we got it dry we mixed up our cement and

(Testimony of Hearne Harper)

poured it in there, gave it time to get on bottom, that is, we thought it was on bottom, then the problem was if we put our mud in on top of that if it would mix with that cement, and then we thought we would fix some way that we would know when we had pumped all our cement out of that casing; so we rolled up a bunch of sacks and put shale in it, we made a good big roll so it would fit tight inside of the casing, and then put our mud on top of that, filled up the hole to where it was full, then we connected our swivel on the top, picked up the pipe off of bottom, one or two inches, just enough to get circulation; I mean the casing; and pumped it until the pump stopped, shut off; then we figured we had the cement pumped behind the casing, then we set it down and let it set there for four or five days, went inside of it and drilled the well into the gas sand. When we set it on the bottom the sacks were inside of the casing mixed with a little cement, but they were right in the bottom of the hole. The casing was full of mud and the sacks right in the bottom, and the cement mixed with them there. The sacks were put in there, I figured then, to let us know when we had the cement all pumped out of the casing, and when we put the mud in it wouldn't mix with the cement. We used it for two purposes there.

I believe that Pardue well No. 1 was cemented in November, 1908. The Childs well was about the same time, not over thirty days apart; I believe it was afterwards a short time.

Q And can you tell by reference to these records which have been produced, marked "John W. Snyder" which were the subject of debate yesterday, the exact date of that?

(Testimony of Hearne Harper)

MR. LYON: We object to any reference to the records as improper, not the proper method of proof, and on the ground that no foundation for the alleged record has been laid, and it is an improper record for the witness to avail himself of for the purpose of refreshing his recollection at the present time.

A The logs of that well should be in these books.

MR. LYON: Now, I move to strike out the answer of the witness on the ground just stated.

Q BY MR. WESTALL: And will you kindly examine the books and find the records?

But before answering that question I would like to make this statement on the record. The record should show that counsel for both sides met at this office in accordance with the agreement yesterday, at 9 o'clock this morning, and counsel for plaintiff examined the records which are now placed before the witness, namely, the two books which the witness testified were part of a set which were sold by Mrs. Newcombe for \$1000, and which we expect to further identify by the testimony of other witnesses; and examined the same until 9:40, when counsel announced he had completed his examination, and that Erle P. Halliburton, the licensee of the Perkins patent in certain territory, also examined the records beginning at 9:05, and continuing his examination until shortly before the proceedings in this case were begun, pursuant to adjournment, at 10 o'clock this day.

MR. LYON: Also let the record show that we found the records referred to to be unreliable and incompetent, and we demand that they be made of record in order that they may be passed upon by the Judge or Judges deter-

(Testimony of Hearne Harper)

mining this case; and in the absence of such records in the record, we object to the witness referring to the same, as it would be impossible for the Court to pass upon the testimony of the witness which is based upon these records, without having the records there to inspect and examine them. These objections are made in addition to our general objection, which it is understood is reserved to all of this line of examination, to wit, that these records are not competent and cannot be legally employed by the witness for the purpose of refreshing his recollection, and there is no foundation for these records whatever.

MR. WESTALL: It is understood and agreed that Counsel's objections just noted, which were placed on record yesterday, will be considered as repeated to all questions relative to the records, without the necessity of repetition. And I will state that we intend to have copied into the record the few pages of these records which will be referred to by the witness when the same constitutes any pertinent evidence; and that the only objections and reason I do not produce the entire record is because there are several thousand pages, each page apparently relating to a different well, the records extending from the year 1908 and possibly before that date up until apparently recent years, and the great bulk of the pages being totally irrelevant and immaterial to any matter before the Court, and having no relation to any issue in this case, we do not deem it proper to place them all in this record.

We also do not care to offer these records in evidence because we do not own them, they are private books and they cost one thousand dollars a set, not being printed

(Testimony of Hearne Harper)

but being typewritten, and being of so little pertinence to the case I do not believe they could possibly be of any assistance to the Court or anyone else except for the establishment of the very few dates involved in this proceeding and I notify counsel now that if he believes that they are of any assistance to his case or might be in any way he may find the books in the custody of Mr. John Y. Snyder, whose office is hardly a block away from here, and he can get all of the information regarding them if he pleases and also procure a complete copy of them for the sum of one thousand dollars from Mrs. Newcombe, notice of whose testimony was given yesterday.

MR. LYON: Without waiving any of the objections heretofore noted in reply to the statement of counsel, we will say that as the witness for the defendant is employing these books in connection with his testimony, it is the duty of the defendant to produce the books upon demand for the inspection of the Court, and the defendant cannot employ evidence and then deprive the plaintiff of an opportunity of having the court consider the same unless the plaintiff pays a thousand dollars—that is a totally unreasonable suggestion, and if it were the law there is no reason why it shouldn't be a million dollars instead of a thousand dollars when the opposing party would be absolutely at the mercy or any other party that was interested in the case on behalf of the party calling the witness.

MR. WESTALL: As I stated before any pages referred to by the witness which are in any way pertinent will be copied by the Reporter into this record.

(Testimony of Hearne Harper)

MR. LYON: I object to the copying of them on the ground first that it is incompetent, irrelevant, and not the proper method of proof, and secondly on the further ground that these purport to be a continuation or series of records relating to all wells drilled, and we are entitled to have the Court have the whole series before it in order that it might judge the accuracy and character of the alleged documents.

MR. WESTALL: The witness now turns to a page purporting to be the log of H. H. Pardue No. 1 well of the Caddo Oil & Gas Company, and we request the Reporter to copy that complete log as it stands into the record.

MR. LYON: It is understood that our objections above noted are reserved to each and all of the questions asked, and the proceedings had in this examination, and the request for the copying of any of these records, without the necessity of repeating the same.

MR. WESTALL: For the purpose of saving time and argument we agree that all proper objections may be considered as properly and completely reserved to all of this evidence.

(The Page referred to is as follows:)

H. H. PARDUE #1—CADDO OIL & GAS CO.—
CADDO PARISH, LA.

Location: T. 21 N-R. 16W-Sec. 1 S. $\frac{1}{2}$ of NW $\frac{1}{2}$ of
Sec. 1 2 mi. S. of Vivian, La., on E. Side of
Kov RR in Vivian Oil & Gas Field.

Elev. -205'-	T. D. 1020'	I. P.
Began 11-9-08	Comp. 11-27-08	
Gas. rec. -Set 8" at 366'3"-6" at 1107'1"		

(Testimony of Hearne Harper)

- 0 to 80 Sdy. shale
- 180 Water Sand
- 280 Sdy. Shale & Clay
- 282 Gumbo
- 284 Soft Sand Rock
- 286 Gumbo Muddy
- 300 Lignite Sft. Coal
- 310 Pack Sand Gas
- 315 Gumbo
- 316 Hd. Brown Rock
- 325 Soft Shale Gas
- 335 Blue Pack Sand
- 336 Rock Shell Sft.
- 357 Pack Sdy. Shale
- 366 Gumbo
- 369 Gumbo
- 419 Blue Rotten Shale
- 420 Thin Rock Shell
- 495 Blue & Dark Shale
- 497 Sft. Sand Rock
 - good gas show
- 507 Soft Gumbo
- 523 Blue Soft Shale
- 537 Soft Gumbo
- 542 Blue Shale
- 543 Rock Shell
- 586 Muddy Shale
- 600 Gumbo
- 607 Muddy Shale
- 608 Rock Shell Soft

(Testimony of Hearne Harper)

664 Muddy Shale
665 Rock Shell
694 Blue Shale
701 Gumbo
794 Shale & Gumbo.
795 Soft Rock Shell
801 Gumbo
804 Shale & Gumbo
809 Blue Shale
810 Rock Shell
1002 Gumbo
1007 Gas Sand
1020 Gas Sand

T. D.

Note: Well completed, great gas well, forty million cu. Ft. per 24 hrs. Well showed about 455 pounds rock pressure.

Contractors: McCann & Harper.

Q Now, referring to the record of this Pardue well No. 1, which you have pointed out, can you state more definitely when the well was cemented as you have described?

MR. LYON: Same objections as heretofore noted.

MR. WESTALL: You don't have to do that, you don't have to make or note any further objections in regard to any of these records, because any further objections regarding any of these records, as we have heretofore stipulated, will be considered as reserved.

A I see the log of H. H. Pardue No. 1 we drilled for the Caddo Gas & Oil Company with the date given, the

(Testimony of Hearne Harper)

date we began drilling on it, and it gives the date we completed it. The words "Began 11-9-08" mean that we began drilling the eleventh month and ninth day, 1908. "Comp. 11-27-08" means it was completed November 27, 1908. It takes us about four days to drill one of these gas wells in, and that would make the cementing say along about the 23rd of November, 1908.

We cemented a well in December for the Richardson Oil Company or D. C. Richardson. D. C. Richardson was the man who had charge and the man we talked to. He organized the Richardson Oil Company, and that was located right down near what is Oil City now; it was Annanais then.

I can refer to the record of Childs No. 1 well before me. That well was begun on the 11th month and 7th day, 1908, and completed on the 12th month and 15th day, 1908.

(At the request of counsel for defendant, the log of said well is copied into the record, as follows:)

J. C. CHILDS #1-VIVIAN OIL COMPANY-CADDO PARISH, LA.

Location:- T. 22N-R. 16W-Sec. 36. In center of & 300' N. of S. line of NE $\frac{1}{4}$ of NE $\frac{1}{4}$ Sec. 36 & 1- $\frac{3}{4}$ mi. SE of Vivian, La. in the Vivian Oil & Gas field.

Elev:-210'-est.- T. D.-1074 '11"-I. P.-See Note.

Began.-11-7-08

Comp.-12-15-08

Cas. Rec.-Set 8" at 305'6"-Set 6" at 1049'11".

Cor.

40 White Water Sand

85 Blue Water Sand

(Testimony of Hearne Harper)

- 124 Blue Sandy Shale
 - 126 Hard Rock
 - 145 Blue Shale
 - 146 Hard Rock
 - 207 Blue Shale
 - 210 Hard Rock
 - 306 Blue Sandy Shale
 - 363 Blue Shale
 - 364 Hard Rock
 - 407 Blue Shale
 - 408 Hard Rock
 - 448 Blue Shale
 - 449 Rock Shell
 - 557 Blue Shale
 - 558 Rock Shell
 - 725 Blue Shale
 - 726 Rock Shell
 - 871 Muddy Shale
 - 950 Blue Shale
 - 960 Blue Shale & Bldrs.
 - 1050 Blue Shale
 - 1052 Top of Oil Rock—Cap Rock Hard
 - 1065 Oil & Gas Sand—Showing Gas & Oil—Well tested at above depth about 3 Barrels. Well was then drilled deeper.
 - 1067 Soft Light Brown Oil Sand
 - 1068 Hard Sand Rock
 - 1074'11" Soft Sand, Light Brown—Oil & Gas
- T. D.

NOTE: Well again tested and produced for two days gas and oil at rate of 50 barrels and then flooded with

(Testimony of Hearne Harper)

salt water. Well abandoned Dec. 19, 1908. The above well was reopened in April, 1909, cleaned out 6" casing and perforated pipe, reset and gas from the Powell well turned in through a 2" line and the well flowed by gas pressure and produced 15 Bbls. of oil per day with 4000 barrels of salt water. On May 29th, 1909, well was nearly all Salt Water.

THE WITNESS:

I looked for the log of the Richardson well in this record, but we made a contract with Mr. Richardson which will fix the date of that, if I can see the contract.

MR. WESTALL: The contract I am referring to has been offered in evidence as Defendant's Exhibit No. 3, Richardson-Harper contract, which we now hand the witness.

MR. LYON: Objected to as incompetent, not the proper method of proof, improper for the witness to refer to a document which is incompetent, no foundation laid.

THE WITNESS: We made this contract with the Richardson Oil Company or D. C. Richardson in December, 1908.

MR. LYON: Let the record show that the witness is reading that from the contract.

Q BY MR. WESTALL: And what does that date indicate to you so far as fixing the time of cementing the well referred to?

MR. LYON: Same objection.

THE WITNESS: Well, we started this well right afterwards, and drilled it in December and the first of January. It would take about thirty days to drill this

(Testimony of Hearne Harper)

well 1600 feet; at that time it would take between twenty and thirty days before we would have it ready for the cementing.

This Richardson well was cemented with sacks. We set the casing—after making the hole for it, near the bottom of it, got circulation, got it all washed out clean, and after we done that we run some pipe into the well, say two or three hundred feet, and then pulled it out, poured our cement in it, made a plug with sacks and put it in on top of the cement, connected our swivel up to the top of it, started up our pump and kept the pressure against it, lifted the casing off bottom a few inches, pumped it until it shut the pump off, and then let the casing back on bottom and let it set there for four or five days, and then drilled it in and made about a 5000-barrel well, I suppose, something like that as well as I remember. We determined when the cement was outside of the casing by these sacks we put in there. When they got to the bottom of the casing there wasn't room enough so that we could pump them on out, and they stopped in that small opening at the bottom and slowed the pump down or stopped it.

Q Now, you have referred to a method of cementing with the use of a wooden plug used as an indicator. Will you please state when you cemented your first well to your recollection by that method?

MR. LYON: That is objected to as assuming a fact not testified to by the witness.

A Well, we drilled a well for the Caddo Oil & Gas Company known as Christian No. 1. When we went to set the casing in that hole they got into trouble; they

(Testimony of Hearne Harper)

didn't get it quite on bottom. It struck three or four feet off bottom, and they had already drilled into the gas sand a little ways and the gas was bothering them, and I went over to that well, and the drill stem was out of the hole, blowed out completely, bent over the top of the derrick. And we were talking about what trouble we were in and how we were going to cement it and what we were going to do with it. We were worried about it, the casing being three or four feet off bottom. We talked about running a 4-inch pipe into the bottom of the hole and then try and siphon or put the cement through the 4-inch pipe, but we couldn't see where that would work out, so Mr. McCann and I decided that we would make a wooden plug and put sacks and things on top of it, have the plugs long enough to extend up into the casing when we pumped our cement down—so that when we pumped our cement down this plug, being up in the casing, would shut the pump off and indicate to us where our cement was and where the plug was, which they would both be together, and so we done that and made a job out of it.

Q Now, you have referred to the Pardue well, the Richardson well, the Childs well and the Christian number 1 well. Were these all successful jobs, cementing jobs?

MR. LYON: Objected to as calling for the conclusion of the witness. He can state the facts and the Court can draw its own conclusions.

MR. WESTALL: Q Then, state the facts as counsel suggests relative to the success or non-success of them?

A The Christian well was a big gas well and didn't show any leak behind the casing after we cemented it.

(Testimony of Hearne Harper)

MR. LYON: Objected to as calling for the conclusion of the witness.

A (continued) Pardue was a big gas well and held good, no leaks.

Q And the other—

A (Interrupting) I considered them good jobs.

Q In all these instances?

A In all these instances.

MR. LYON: I move to strike out the last answer of the witness as incompetent and as volunteer.

THE WITNESS: I haven't noticed the sheet for Christian No. 1 well in these records. I saw the Christian No. 2 and Christian No. 3 in there. I haven't got that marked. We had a contract and I didn't think that one was necessary. The Richardson well I was talking about was just a well we drilled for Mr. Richardson, beginning December, 1908, and finishing in 1909, I think. We made a contract for it. Mr. Richardson was drilling different wells, but the contract there is the contract we drilled the well under.

When we cemented Christian No. 1 well, just after the cement was pumped down there was mud in the casing, and the plug was in the bottom, extending up into the casing. The casing was three or four feet from the bottom.

Q How then did you prevent the cement from going back into the casing?

A We just left our swivel on top of the casing and couldn't anything come back. That swivel closed off the top of the well.

On Pardue No. 1 there was one man by the name of Wesley Jordon, and another man by the name of Nat

(Testimony of Hearne Harper)

Hall, and then I remember a man on there by the name of Thompson, and there was a man by the name of Perkins, Sam Perkins, he was there. I am sure it wasn't the California Perkins, Alvin A. Perkins. This fellow was superintendent for the Caddo Oil & Gas Company. I know it wasn't Mr. A. A. Perkins who is involved in this suit. And there were three or four others there, but I can't recall their names now. It was a full drilling crew. Wesley Jordon was the driller. Nat Hill was a roughneck or helper; Thompson was a roughneck. Perkins was working for the Caddo Oil & Gas Company.

On the Childs well there was a man by the name of Walter George, and John Burroughs, and a man by the name of Crawford. I don't know how to spell Burroughs; he has no brother in Oklahoma that I know of. There was a crew there, but Walter George can give you the names because he kept the time, I didn't keep the time, I was the contractor.

On the Richardson well there was Charlie Thompson, and a man called "Four-eyed" Smith, roughnecks you know. I don't keep up with all of them on every well, I don't try to recollect their names; and I had a brother there by the name of Roy Harper. He left El Dorado about a month ago for Luland, Texas.

On Christian No. 1 I can give the names of some of those present. Walter George was on that job, and John Burroughs, and a man we called Red Pyle, and Harmon Mahaffey, and that is about all I can remember now. A fellow by the name of Fred Kyle worked on it. I didn't keep all of the names of the men working for me, I had more than one rig. I would have to go back and hunt up

(Testimony of Hearne Harper)

some old time books to get them all, to keep them separate, because I can't remember all of the roughnecks and teamsters and men that worked for me in 1909 or 1908; I do well to look after the business end of it.

Since that time I have had quite a wide experience. I started in there and by 1910 I believe I had four rigs running then, and kept adding onto them until I had as high as nine outfits running at once. Taking a night and day crew, it would be about ten men to the well; working just days we would run about five, and in those days we carried a blacksmith with us too, on each one of these rigs. On nine rigs running I would have 90 men employed; with four rigs I would have between 35 and 40 men. In that time we were considered big contractors in this country. In 1923 we had the most men we have ever had working for us; had more rigs running in 1923 than I ever had in my life.

The best that I can remember as to the date of cementing the Christian No. well it was in the spring of 1909; it was March, I think. I can't give the exact date it was started or the exact date it was completed, but it was March 1909 when we completed that well, that is when we were drilling it. I haven't looked very much for the log of that well in these records here before me marked "John W. Snyder" records. I ran through there yesterday, but I didn't locate No. 1. I located, I believe, Christian No. 2. I can refer to it and No. 3, but they were not drilled by McCann & Harper.

These books marked "John W. Snyder", as I understand, are records of all the wells that were drilled in North Louisiana, and if any of us have any logs we were glad

(Testimony of Hearne Harper)

to let these people have them so as to help out, because we needed something like this in the country, and I suppose they wanted to make money out of it to pay them for their work. I judge there is between six and eight hundred wells here, the logs of them. I couldn't say exactly because I am a well contractor, not a bookkeeper or anything like that. I have made no effort to count the number of wells in either of these books; if I did I would like to have at least a day in order to do it.

Q Referring to one of them, there is apparently about two reams of paper in this book, isn't there?

A I don't know just what constitutes a ream, but I will say there is lots of logs there, and me being in the Louisiana Fields as I have, I know there is lots of wells that has been drilled in this country and they are all supposed to be in these books.

MR. LYON: I would like to have the record show that these books here do not purport to be the original logs, but that they are merely copies made by somebody.

Q BY MR. WESTALL: Now, since the cementing of Christian No. 1, which you say was, according to your recollection, sometime probably in March, 1909, have you used that method of cementing through casing with the use of plugs substantially as described by you with reference to the Christian No. 1?

MR. LYON: That is objected to as leading and suggestive.

A Yes, most all of the wells we have cemented have been cemented with plugs or sacks were used to show us or indicate that the cement was in the bottom of the casing and on the outside of it.

(Testimony of Hearne Harper)

Q BY MR. WESTALL: Now, after Christian No. 1 can you mention any other wells that were cemented by the use of this pumping through casing and plug system during the year 1909 and prior to October 1st, 1909?

MR. LYON: That is objected to as assuming a fact not testified to by the witness.

A We had a contract with Busch-Everett Company to drill them—we started off with five wells. We had a contract to drill them five wells. That contract was made in—

MR. LYON: I object to the witness stating what is in the contract, as incompetent and no foundation laid for secondary evidence.

A —in 1908; that contract should be on record in the courthouse. If I could see that contract or a copy of it I could fix the date as to when we cemented these wells.

(Mr. Westall hands witness contract dated December 11, 1908, between Busch-Everett Company and J. B. McCann and W. H. Harper.)

Q BY MR. WESTALL: I now place before you the contract referred to and ask you to state, with your recollection refreshed by reference to this contract, when the five wells that you referred to were drilled that you have stated were drilled by the Busch-Everett Company?

MR. LYON: That is objected to as incompetent, irrelevant, an improper method of proof, improper method of refreshing the recollection of the witness; and the further objection is made to the purported contract as incompetent, not the best evidence and no foundation laid for the introduction of secondary evidence, and no foundation laid for the authenticity of the purported copy that has been handed to the witness.

(Testimony of Hearne Harper)

A This contract was made between the Busch-Everett Company and McCann & Harper in December, 1908, to drill them five wells in what was known as the Caddo Oil & Gas Field, and we drilled them and a good many more for them. I couldn't say that I could name just the five wells referred to in this contract, but I remember distinctly some of them. This contract was for just five, but we went ahead and drilled, I suppose, forty wells for these people.

(Contract referred to offered in evidence.)

MR. L. S. LYON: We object to the contract as incompetent, irrelevant, and immaterial, not the best evidence, no foundation laid for the introduction of secondary evidence, and no proof of the authenticity of this copy.

(Document marked Defendant's Exhibit No. 4, Busch-Everett-McCann & Harper contract.)

Q BY MR. WESTALL: Now I ask you, Mr. Harper, at the time you were cementing these wells in 1908 and 1909 what other firms or individuals were there who were cementing oil wells in this country?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and as an attempt to prompt the witness, and as leading and suggestive.

A There was a firm here at that time, 1907 and '8, drilling gas wells for G. S. Barnsdale from Oklahoma—they were using cable tools to drill with and they were cementing—they were cementing differently from what we were. That was in 1907 and up into 1908. In using cable tools to drill with they didn't use mud, but just a little pipe of water, and they would set two or three hundred feet of 10-inch casing and cement that by pour-

(Testimony of Hearne Harper)

ing cement around it, and they called that a water string. They shut the water off of that, and then they went on the inside with the six, seven or eight inch, and got it on top of the gas sand, and they would pour the cement from the inside of it, pour quite a bit in there and lifted their casing up and let the cement seek its level so there would be about as much on the outside as there would be on the inside, and that is the way they would cement wells. There is where we got the idea on Pardue No. 1, bailing that casing dry and pouring my cement in there and putting the plug on top of the cement as I stated before. Barnsdale is a well known contractor in Oklahoma and Texas; I believe they must have left the Caddo field in about the spring of 1909, but they cemented these wells in 1907 and 1908. They drilled a good many of them.

Q And what success did they have, if you know?

A The cementing was a success, but their method of drilling their wells was too slow.

MR. LYON: That is objected to. I didn't have time to raise an objection before the witness answered the question, but it is objected to as calling for a conclusion of the witness, and as incompetent and no foundation laid.

THE WITNESS: Our competitors in 1909 in doing this cementing in this field here were the Vivian Oil Company and the Caddo Oil & Gas Company, they were the only two outside of the Barnsdale crowd that I know much about. McCann & Harper did the most oil well cementing in the early part of 1909 or the latter part of 1908.

Q Do you know whether any of the companies did their own cementing here outside of the Vivian Oil Com-

(Testimony of Hearne Harper)

pany? I am talking about the early part of 1909 particularly, and the latter part of 1908.

A There were some people in here operating by the name of The American Well Prospecting Company too, along about that time. I don't know what they were doing, though. There were no others that I can think of just now.

Referring to these particular records marked "John Y Snyder," I examined the record as far as dates on Pardue No. 1 and Childs No. 1, and I have turned over each sheet of the records of wells that were cemented along in 1908 and 1909. I haven't looked for the logs of wells that were cemented by others than McCann & Harper; the date on those is all I looked for. They contain a great many logs of wells I had nothing to do with at all. I turned over each one of these pages and had to do so to find the wells I wanted to refer to.

Q Now, in doing that did you notice whether or note any of these logs contained any description of what particular method was used in cementing the wells?

A No, I never paid—the way we cemented wells we never put that on the logs. In drilling a well we always put down the location, the elevation, the farm, and when we began, and when we completed it. We didn't go into detail and tell how it was cemented in this country. I do not remember any instance when I looked over these records of there being any reference or description to the method that was used in cementing the well; I didn't keep any record of that kind.

MR. WESTALL: I believe counsel and Mr. Halliburton have thoroughly examined these records, made a

(Testimony of Hearne Harper)

complete examination of them, and of course if counsel has found any record referring to cementing wells which are contrary to the evidence of the witness, or any statement therein, I invite him to point out where and we will be glad to put that particular log in evidence.

MR. LYON: We do not waive any of our objections, but we call counsel's attention to the fact that these are not the complete logs, not complete copies of the logs, merely abstracts of certain parts, as the witness can see by reference to the logs of the Busch-Everett Company which are here in evidence, and we will ask counsel to have for the purpose of the record, subject to our objections, have the Reporter copy into the record the log of Levy Board No. 1 well, Gulf Company, which appears in one of these volumes. . .As I intend at the time this matter is presented to insist upon my demands subject to my objections that the entire record shall be there for the Court to review it, they should be there to show for themselves, and I shall insist on all of my objections and demands subject to the objections; but I do, just to indicate that counsel's statement is wrong, ask that the particular sheet we will note, which is only a fragment of the original log, be copied into the record at this time, to show the Court what sort of a record this is.

MR. WESTALL: Attention is called to the fact that this sheet is entirely incompetent, irrelevant, and immaterial, inasmuch as it shows that the drilling was commenced December 10, 1912, and completed in February, 1913, which is entirely too late to have any possible pertinency or any possible bearing on any issue in this case. The only evidence that would be pertinent being

(Testimony of Hearne Harper)

events that happened prior to the date of the alleged invention of the Perkins patent in October, 1909.

(The log referred to in the foregoing request is as follows:)

Levee Board #X-1 GULF REFINING COMPANY-CADDO PARISH, LA.

15

Location:— T.20N-R 15W-Sec. 7—1400' E & 400' S of NW Cr. Sec. 7.

Elev. —8' above Hostetter #1 (175.30)—T. D. 2200'—I. P. —S. W. Abd.

Began—12-10-12 Comp. 2-17-13

Cas. Rec.—Set 10'' at 248'—8'' at 923'—6'' at 2098'.

Liner Rec.—See Note

Cor.—

25 Clay	192 Rock	680 Shale & Bldrs.
45 Sand	204 Gumbo	786 Tough Gumbo
50 Clay	204'6'' Rock	910 Gas Rock
54 Rock	212 Gumbo	921 Gumbo
67 Sand	215 Rock	959 Hard Shale
68 Rock	231 Shale	969 Shale
70 Sand	240 Gumbo	971 Rock
71 Rock	260 Shale	1014 Shale
76 Sand	263 Rock	1034 Gumbo
78 Rock	263 Rock	1103 Shale
105 Sand	269 Gumbo	1107 Rock
109 Rock	389 Shale & Bldrs.	1196 Shale
112 Sand	400 Gumbo	1279 Chalk Rock
113 Rock	407 Shale	1408 Chalk Rk. & Shale

(Testimony of Hearne Harper)

118 Sand	413 Rock	Oil Showing
121'6 Rock	440 Shale	1448 Chalk Rock
129 Sand	445 Gumbo	1500 Chalk Rock & Sh.
129'6" Rock	450 Rock	1529 Chalk Rock
150 Sand	473 Shale	1565 Ch. Rk. & Blue Sh.
153 Rock	474 Rock	1570 Hard Rock
163 Shale	495 Shale & Bldrs.	1855 Sand Rock
165 Rock	496 Gumbo	2006 Hard Shale
188 Shale	498 Rock	2010 Rock
188'6" Rock	567 Shale & Bldrs.	2025 Hard Shale
191 Gumbo	569 Rock	2035 Rock
2098 Hard Shale		
2100 Hard Rock		
2102 Black Sand		
2109 Hard White Sand		
2115 Hd. White Sd & White Shell		
2118 Hd. Blue Shale		
2121 Sand		
2129 Hd. Sd. Shell, Shale & Oil Sand		
2136 Blue Shale Ch. & Sd.		
2146 Ch. Rk. Shell & Sd.		
2151 Blue Shale & Oil Sd.		
2155 Hd. Ch. & Blue Shale		
2158 Sand Rock		
2161 Shale, Chalk, Shell & Oil Sand		
2165 Pack Sand		
2169 Shale		
2171 Sand Rock		
2177 Pack Sand		
2187 Sand Rock		
2190 Pack Sand		

(Testimony of Hearne Harper)

2199 Shale & Oil Sd.

2200 Gumbo.

NOTE: Bailed well at 2121' blew mist of salt water and probably about 5 Bbls. of oil per day. Bailed again at 2171', showed considerable Gas, very little oil and a little salt water. Bailed at 2200' but could only bail it down 1600'. Salt Water, Set 248' 10" cag. pulled it after setting 6". Set 923'8" which is still in hole. Set 2098 of 6" cmtd.

THE WITNESS: Every well we drilled for Busch-Everett was cemented. Mr. J. B. McCann looked after most of the cementing on the Busch-Everett wells. I personally looked after the cementing on one of them, one of the first ones down near the lake side. I can't give you the number of that well. I set 8-inch casing about 1300 feet and cemented it. Mr. McCann looked after two more wells known as the Pitts.

MR. LYON: I object to this witness testifying to something that Mr. McCann saw and not the witness.

Q BY MR. WESTALL: Will you please state how McCann & Harper cemented wells, beginning in 1908 and 1909, referring generally to all wells and your general knowledge of how these wells were cemented?

MR. LYON: That is objected to as calling for reputation and as indefinite and uncertain.

THE WITNESS: Well, I was a partner in the firm of McCann & Harper, and we had our contracts, and we agreed with the people to cement them when we made the contracts, and we hired men out there to cement them and told them how we wanted them cemented and furn-

(Testimony of Hearne Harper)

ished the materials for them to be cemented. Of course I didn't stand over every particular well to watch every minute detail on each well, neither did Mr. McCann. They were cemented by the men we had hired there for that purpose as well as for running the other operations necessary to drilling, and I know that the men carried out our orders.

Q BY MR. WESTALL: And how did you order these wells that were cemented in 1909, say between the time of the cementing of Christian No. 1, which I believe you stated was in March, 1909, up to October, 1909?

A My orders were to use cement with plugs or sacks, and Mr. McCann was a little doubtful which was the best, and he cemented some by running the drill stem down at the bottom of it, as I have described, and doing it that way, and in some of these wells it was siphoned down by pouring it in in that way, as I have told you, and some of them he used the plugs.

Q Now, can you say how wide was the knowledge of this method of cementing in this field in 1908 and '9? And by this method I mean the plug method through casing you have described as having been used on Christian No. 1 well, for instance, and in giving your answer you may state generally how you know of the fact.

MR. LYON: That is objected to as not the proper method of proof, incompetent, and no foundation, and calling for a mere conclusion of the witness.

A Well, as oil men we would meet frequently around the hotels here and out in the field, and we talked about cementing. Of course, that was a big object here in setting the casing, and, as I say, in meeting each other

(Testimony of Hearne Harper)

around at boarding houses and hotels around we talked about cementing, and the easiest way to do it, and we told what experience we had had on the Pardue and Christian by the use of plugs, and that was the easiest way, and it is natural for drillers or roughnecks, if they can find an easier way to do anything, they want to do it that way, and the plugs was the easiest way of cementing, and it was natural they wanted to do that this way; they wanted to cement their wells—wanted to do their work that way. They all knew about it.

Q BY MR. WESTALL: And in these various discussions you had did the various fellows you talked to or the ones participating in the discussion say they knew what this method was?

MR. LYON: Same objection, and also that it is grossly leading and suggestive and prompting the witness.

A Well, cementing wells was generally talked around through the oil country. It was known about and it was an easy thing to do to get them to try it.

MR. LYON: I move to strike out the answer of the witness as not responsive, and as incompetent, no foundation laid, not showing any statement of facts but a mere conclusion or surmise of the witness as to the condition of the mind of somebody else and as being too broad, vague, indefinite and uncertain.

THE WITNESS: After Christian No. 1 well, and before October 1, 1909, Jolley No. 2 was cemented with plugs. Mr. Walter George and Mr. J. B. McCann was there and cemented it. Mr. McCann and I talked it over and stated that is the way we would cement that well,

(Testimony of Hearne Harper)

use plugs on it, and we went out there and cemented it that way. That was Jolley No. 2 well.

Q BY MR. WESTALL: Can you produce from the records or the John Y. Snyder records the logs of any other wells than those which have already been produced which were cemented by McCann & Harper or by you in 1909 and prior to October 1, 1909, and if so please do so?

A Here is Jolley No. 1, Busch-Everett Company, which was cemented. Jolly No. 1 was begun drilling the fifth month and 24th day, 1909, and completed on the sixth month and 18th day, 1909. That was one of the first wells we drilled for the Busch-Everett Company, and my orders was for it to be cemented. I suggested to them to use the plugs. I wasn't there and I couldn't say exactly what they did. Mr. McCann was on the job.

MR. WESTALL: The Reporter will understand that each one of these referred to by the witness will be copied into the record at the point at which it is referred to, without further instructions.

(The last mentioned page is as follows:)

JOLLY #1 - BUSCH-EVERETT CO. CADDOPARISH, LOUISIANA.

Location: T. 22N. -R. 15 W. Sec. 27 - SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of SW $\frac{1}{4}$ nr. Cen. Sec.

Elevation: 219.4 T. D. 914' I. P. 10 mil. cu. ft.

Began 5-24-09 Comp. 6-18-09 Dry Gas.

Cas. Rec. - Set 10" at 261' - 8" at 902'.

Liner Rec.

Cor-

(Testimony of Hearne Harper)

- 60 Yellow Clay – sand in top
- 68 Light Colored water, sand-small amt. bad salt water.
- 78 Red Clay
- 148 Gray Pack Sand, nearly sand stone
- 150 Rough hard flinty rock
- 178 Blue Gumbo
- 179 Flinty Rock
- 229 Gumbo mixed with stratas of rock shell
- 244 Same formation – Gas showing
- 250 Shell & Gumbo
- 252 Very Hard Sandstone rock – 30 hrs. to drill
- 261 Gumbo
- 560 Soft Muddy Shale, trace of gas
- 602 Tough blue shale, scattered boulders.
- 606 White Chalk Rock
- 640 Tough Blue Shale, flinty rock shell
- 671 Soft dark muddy shale
- 802 Flinty rock shell, tough blue shale & few scattered
bldrs.
- 824 Mixed sand rock, blue and white shales – gas showing
first 14'
- 830 Hard Sand Rock, tough blue shales
- 856 Soft muddy white and mixed shales
- 857 Hard flinty rock
- 902 Blue shales
- 914 Vivian Gas sand, good showing

T. D.

NOTE: Well blew in and while cementing 8" casing on top of sand and after drilling 12' and pulling rotary pipe out, it again blew out and showed volume capacity of 10,000,000 cu. ft. per day of dry gas. No further

(Testimony of Hearne Harper)

efforts were made to drill deeper and the well was shut in at that depth.

Contractors: McCann & Harper.

THE WITNESS: Now, this Jolley No. 2 here is another well drilled in 1909. It began on the ninth month and eleventh day, 1909, and completed on the ninth month and 29th day, 1909. Mr. McCann and I talked about cementing this well and he cemented it with plugs. I wasn't there.

MR. LYON: Then we move to strike out the answer as to how the well was cemented, because the witness cannot have any knowledge of it. He states he was not there himself.

THE WITNESS: I had the right to give orders how things should be done, and talk with my partner how we wanted the well cemented, and that was what we did in that case.

(The log referred to is as follows:)

JOLLY #2 - BUSCH-EVERETT CO. - CADDOPARISH, LA.

Location: T. 22N -R. 15W-Sec. 27-250' SE of NW Cr.
of E $\frac{1}{2}$ of SE $\frac{1}{4}$ of Sec.

Elev. 210.4 T. D. - 905' I. P. -75 Mi. Cu. Ft.
of Gas.

Began 9-11-09

Comp. 9-29-09

Cas. Rec - Set 10'' at 299' - 8'' at 895'.

Liner Rec.-

Cor.

(Testimony of Hearne Harper)

- 70 Red Clay
- 71 Shell Rock
- 168 Pack Sand
- 174 Water Sand
- 207 Pack Sand
- 208 Shell Rock
- 218 Gumbo
- 229 Hard Flinty rock
- 234 Gumbo
- 236 Hard flinty rock
- 299 Blue Shale
- 300 Hard Flinty Rock
- 382 Blue Shale
- 383 Hard Flinty Rock
- 507 Soft Blue Shale
- 508 Hard Flinty Rock
- 642 Soft Blue Shale
- 643 Hard Flinty Rock
- 791 Soft Blue Shale
- 817 White Chalky Rock Good gas showing
- 825 Gumbo
- 826 Hard Flinty Rock
- 848 Gumbo
- 850 Very Hard Flinty Rock
- 875 Gumbo
- 895 Cap Rock
- 902 Gas Sand, good show of gas
- 903 Hard Rock
- 905 Second Gas Show

T. D.

(Testimony of Hearne Harper)

NOTE: Well blew in on top of second pay, showing capacity of 75,000,000 cu. ft. of gas daily or better and a rock pressure of 455#.

CONTRACTORS: McCann & Harper.

THE WITNESS: Jolly No. 3 drilled for Busch-Everett began October 19, 1909, and was completed November 5, 1909. I know that well was cemented. I wasn't there.

MR. LYON: We move to strike out the answer then.

(The log referred to is as follows:)

LOG OF J. S. JOLLY & CO. WELL #3.

(The Busch-Everett Co -Owners.

Location - T. 22N - R. 15 W Sec. 27 - Caddo Parish, La. 350' NE of SW Cr. of Sec. and 2 miles SE of Hosston.

Elev. 230.9 T. D. 917 I. P. 10 Mil. cu. ft.

Began - Oct. 19, 1909. Comp. Nov. 5, 1909.

Cas. Rec. Set 10" at 284' - 8" at 895'.

25 Red Sandy clay
85 Packed sand
88 Hard sand rock
137 Hard pack sand
138 Shell rock
162 Soft muddy shales
152-10 Shell rock
175 Muddy shale
176 Shell rock

(Testimony of Hearne Harper)

- 182 Rough Blue shale
- 184 Hard flinty rock
- 205 Tough Shale
- 206 Hard shell rk.
- 235 Tough shales
- 236 Hard flinty rock
- 241 soft shales
- 242 Hard flinty rock
- 260 blue shale
- 261 Very hd flinty rk
- 278 Blue shale
- 278-10 Shell rock
- 360 Gumbo and blue shale
- 362 Hard Flinty rock
- 750 Blue Shale
- 754 White chalk rock
- 793 Hard gumbo
- 805 White chalk rock – good gas show
- 838 Hard blk shales
- 840 Hard flinty rock
- 848 Gumbo
- 852 soft chalk rock
- 895 Soft white shales
- 895 Top Vivian gas sand
- 917 Gas sand.

T. D.

THE WITNESS: Here is well No. 2, Vivian Mercantile Company, that was begun on the fourth month and 22nd day, 1909, and completed the fifth month and 12th day. That is Vivian Mercantile No. 1, known as the Bell well.

(Testimony of Hearne Harper)

(The log referred to is as follows:)

WELL #1 – VIVIAN MERCANTILE CO. – CADDOPARISH – LOUISIANA. BUSCH-EVERETT COMPANY.

Location T. 22N-R. 15W-Sec. 29 –250' NE of SW

Cr. Sec. 2½miles Se. of Vivian, La.

Elev. 242'3" T. D. 990'. I. P. 65 mil. Gas

Began – 4-22-09 1026' Comp. 5-12-09

Cas. Rec. – Set 10" at 282' – 8" at 990'.

Cor.–

-
- 20 Sandy Clay
 - 90 Muddy Shale
 - 140 Blue shale
 - 142 Hard Rock Shell
 - 160 Blue Sand
 - 243 Hard Rock Shell, tough Blue Shale
 - 244 Hard Rock Shell
 - 292 Gumbo
 - 294 Hard Lime Rock, Hard Drilling
 - 310 Tough Blue Shale
 - 311 Rock Shell
 - 321 Gumbo
 - 335 Rock Shell & Gumbo
 - 336 Rock Shell
 - 900 Tough Blue Shale
 - 908 Sand Rock – Good Gas Show
 - 971 Gumbo
 - 975 Chalk Rock
 - 990 Tough Blue Shale

(Testimony of Hearne Harper)

1026 Vivian Gas Sand

T. D.

NOTE: Well drilled to 1004'6" brought in at that depth but only showed a 4,000,000 ft. well. Well killed and drilled to 1026'6" and again brought in and showed a rock pressure of 450# and an estimated volume capacity of 65,000,000 cu. ft. per 25 hrs. Gas.

THE WITNESS: I don't remember how that well was cemented.

Here is Pitt 2, that began on the second month and twelfth day, 1909, and completed on the second month 25th day, 1909. That well was cemented through the 4-inch pipe. That is McCann cemented it that way. There is no discussion about that.

(The log referred to is as follows:)

A. L. PITT #2 - BUSCH EVERETT CO., CADDOPARISH, LA.

Location: T 22N R 15W- Sec. 31- SE Cr. of NE ¼ of NW ¼.

Elev. 298'. 196½ T. D. 1082 I. P. 50 Mil. cu. ft. Gas

Began 2-12-09

Comp. 2-25-09

Cas. Rec. Set 8" at 343' - 6" at 1062'

Liner Rec.

Cor.

20 Sandy Clay

192 White water sand, with several thin lignite coal stratas

210 Sand Rock Shell, Blue Sandy Shale

(Testimony of Hearne Harper)

- 275 Blue Sandy Shale thin blue sand
- 343 Blue Muddy Shale with thin lignite coal stratas
- 344 Hard Gray Sandy Shell
- 413 Blue Muddy Shale
- 414 Hard Sand Rock, shell
- 470 Blue Muddy Shale
- 471 Hard Sandy Rock Shell
- 476 Blue Sjale
- 477 Very Hd. Gray Rock Iron & Sulphur – took 10
Hrs. to drill
- 566 Blue Muddy Shale with few scattered boulders
- 744 Sand Rock Shell, Very dark flaky shales, scattered
bldrs.
- 953 Sand Rock Shell, dark hard flaky shale, many bldrs.
- 955 Soft Sand Rock, Gas.
- 982 Gumbo, or Tough Blue Shale
- 984 Soft Sand Rock
- 1062 Gumbo & Tough Blue shales, occasional bldrs.
- 1079 Gas Sand, big Gas Showing
- 1081 Hard Kaolin sand & Chalk Rock Shell
- 1082 Vivian Gas Sand
T. D.

NOTE: Well bailed in at above depth showing a pressure of 456# and a volume capacity of 50,000,000 cu. ft. gas daily or more, and is one of the greatest wells of Northwest Louisiana.

THE WITNESS: Here is Pitt No. 1. I don't remember how that well was cemented. Began January 19, 1909, and completed February 4, 1909.

(Testimony of Hearne Harper)

(The log referred to is as follows:)

A. L. PITTS NO. 1 McCANN & HARPER – CADDO
PARISH, LOUISIANA

Location: T. 22N – R – 15 W Sec. 31–300NW of SE
Cr. of N $\frac{1}{2}$ of NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Sec. – and
2 mi. slightly SE of Vivian, La.

Elev. T. D. 1088-5 I. P.

Began – Jan. 19, 1909. Comp. – Feb. 4, 1909

Cas. Rec. Set 8" at 344'6" – 6" at 1060'8"

Cor.

18 Red Clay

30 White water sand

150 Blue water sand

195 Blue Muddy Shale

196 Hard gray sand rock

344–6 Blue muddy shale

345–6 Thin sand rock

354 Muddy blue shale

355–6 Rock shell, hard

604 Blue muddy shale

605 Rock Shell, hard

751 Blue muddy shale with few scattered bldrs.

752-6 Hard rock shell

876 Blue hard shales and scattered bldrs.

877 Rock shell hard

1060–8 Blue shale rather hard with few scattered bldrs.

Top of Vivian gas sand, set 6" csg. at above depth, ce-
mented 200' back of 6" casing.

1088–5 Vivian gas sand

(Testimony of Hearne Harper)

Bailed well at above depth and developed a gas or rock pressure of 456 pounds and a volume capacity of fifty million cu. ft. per 24 hrs. and is one of the greatest gas wells in the north west Louisiana field and probably in the world.

THE WITNESS: All of these wells that I have referred to were cemented before the date that is given by me as the date of completion as shown by these records. We took four or five days, you know, before it was drilled in, so that I assume the wells were cemented four or five days before that completion date in each case.

MR. LYON: There is a log in there just a few pages further for Richardson No. 1. If you are putting all of these sheets in there it seems to me you should put that one in there subject to our objection.

MR. WESTALL: Mr. Lyon requests that the log of Richardson Well No. 1 be copied, subject to his objection, and we consent, of course, to having that copied or any other pertinent record that should be contained herein.

(The log referred to is as follows:)

WELL #1 - RICHARDSON OIL COMPANY -
CADDO PARISH, LA.

McCann & Harper

Location: T. 20 N. -R. 16W - Sec. 1 - In 6 Acre tract
in NW Cr. of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Sec. & $\frac{3}{4}$ Mi.
N. W. of Oil City.

Elec.- T. E. 16281. I. P. - 5 Bbls. Abd.
Began. 12-7-08 Comp. 1-3-09
Cas. Rec. - Set 8'' at 297'7'' - 6'' at 1387'8''

(Testimony of Hearne Harper)

Liner Rec.

Cor.

- 10 Soft sandy clays
- 60 Red & Blue Muddy Clays
- 100 Coarse Gray Water Sand
- 121 Blue Muddy Clays
- 140 Sandy Shale
- 149 Lignite Coal
- 169 Dark Pack Sand Gumbo
- 515 Blue Sandy Shale, thin rock shells
- 848 Gumbo & Shale, Flinty rock shells
- 1026 Caddo Gas Sand
- Cap of 7' hard, balance soft, Gas showing and salt water at 924' on to bottom, mixed with white shales, salt water
- 1038 Tough Muddy White shales
- 1039 Thin Rock Shells
- 1387 White muddy tough shales, thin chalky flinty shells
- 1628 White Chalky Clay, rock and white shales throughout Oil showing at 1428', 1469' also 1494' to 1567'; last showing much the better from bottom of sand showing to bottom of well, white sticky shales and Kaolin-last 18" showing little sand on bottom - salt water indications.

NOTE: Well was bailed at 1628' and showed for 3 Bbls well little gas - no real oil; showing was in Kaolin shale, white and chalky. Shot with 100 Qts. solidified glycerin on Feb. 1, 1909, but did not improve showing. Later flowed with Gas but only showed 5 Bbls. and considerable salt water and was abandoned.

Contractors: McCann & Harper.

(Testimony of Hearne Harper)

THE WITNESS: Operations began on the 12th month and 7th day, 1908, and completed January, or the first month, 3rd, 1909. That well was cemented with plugs. I was present; and there should be the log of a well in here, that Busch-Everett well I was—we had two rigs running at that time, you see. That Busch-Everett well—I drilled a well down there for them but I can't give the date of that well. It was along in 1909. I will give you the date later.

(Adjournment until 1:30 p. m.)

Q BY MR. WESTALL: Mr. Harper, how long does it usually take to cement a well?

A Well, that depends. It takes longer to cement a well two thousand feet than it does eight hundred or a thousand feet, but these thousand foot gas wells we drilled around Vivian it took all the way from thirty minutes to an hour, but we only put in from twenty-five to fifty sacks of cement, and it only took about ten minutes to pump the plug down. It wasn't a very big job. To put a plug in, just stick it in, I guess it would take five minutes to do that; to put that plug in and screw the swivel on.

Q Are there usually a large number of persons around a well when it was being cemented when the plug is put in?

MR. LYON: That is objected to as incompetent, irrelevant, immaterial and not the proper method of proof, calling for mere surmises or conclusions on the part of the witness.

A There is no reason for anybody to be around there. It is nothing unusual for the drilling crew to be there. Of

(Testimony of Hearne Harper)

course they would be there, but I don't know of any reason why anybody else should be around watching it. The crew would consist of some three and four and five men.

I know Jack Garrett. I do not know whether he is present here. I have made inquiries as to his whereabouts. He is out of work just now and somewhere in Oklahoma, according to the best report I could get. I was not able to find out where.

I know Mr. Roy Hayes. The last I heard of him was a couple of years ago, he was somewhere in Natchitoches Parish, Louisiana. I have not made any inquiries as to his whereabouts since that time and I have no knowledge of his whereabouts now.

Wesley Jordon is in Arkansas somewhere, at least he was the last time I heard from him. I called up the Cotton Belt Hotel—I learned at Camden that he had been there and they were trying to locate him for me. I did not succeed in locating him.

The last time I saw George Kelley was about three years ago. He is a very old man, he must be about seventy years old, he may be dead now.

I don't know where Jim McCathrin is. I have made no inquiries to ascertain his whereabouts; I don't know anything about him.

I saw Tom Sheridan about two or three months ago in Arkansas at Lorain, but he is in bad condition, or was then. He was working on a gas well a long time ago, and had a bad accident that did him up in the Caddo Oil field, and it bursted his ear drums and he can't hear. I don't think he can write; I don't think he can read; he is very illiterate. I never have seen him read or write, and I used to be around him some.

(Testimony of Hearne Harper)

I am acquainted with Mr. Erle P. Halliburton, who is in this room at the present time. I first got acquainted with him last October, 1923. We met out there in Dallas, Texas, at the Jefferson Hotel. No one else was present at that meeting. At that time we talked about cementing oil and gas wells principally. I can't say that I can state the conversation fully, but I know what we talked about most of the time. It was in regard to this gas and oil wells, cementing them, and about Mr. Perkins having a patent on cementing them and what we thought about it.

Q And what did Mr. Halliburton say, and what did you say, at that time, as near as you can recollect it, if anything?

MR. LYON: That is objected to as incompetent, irrelevant, and immaterial, having no bearing on any issue in this case, and not a statement made by any parties in this case or in the presence of anybody who is a party to this suit.

A Well, he asked me a number of times about when I cemented any oil wells or gas wells, and I told him I had cemented them in the early days up here in Caddo, and that I was still cementing them; and he asked me how we cemented them, and I told him that we started up there in 1907 and all the like of that, but I didn't cement with any process like he claimed he was using until along in 1908, and after that we went out to the Fair Grounds and spent quite a while together.

Q Did you talk about the casing and plug process that you have described in your testimony?

MR. LYON: That is objected to as leading and suggestive, the witness having already given his recollection

(Testimony of Hearne Harper)

of the alleged conversation, and it being wholly improper for Counsel to now prompt the witness as to matters which the witness obviously did not recollect; this in addition to the objection heretofore noted that the matter is incompetent, irrelevant, and immaterial, having no bearing on any issue, and this interference of counsel in attempting to impeach his own witness is improper, and further that the alleged conversation was between third parties, none of whom were parties to this suit, and no party to this suit being present or participating in such alleged conversation, and the same is an unnecessary burdening of the record.

THE WITNESS: We did, and we talked about the Perkins patent and the lawsuit they had in Oklahoma with a man by the name of Hugh West, and I asked him what he thought was the chance to break his patent here; also as to his chances for him coming in here and making us pay for cementing these wells. And he said the patent was good because the wells that were cemented in 1908 and 1909 would have no bearing on that patent, and we would have to get back two years prior to October, 1909, before we could claim any right contrary to this patent, and he said that was the law, and he said still he didn't want to have no lawsuits about this thing; so we went out to the Fair Grounds and around, and later on I met Mr. Halliburton over here in Shreveport in lawyer Davis' office.

MR. LYON: I now again move to strike the testimony of the witness for each of the grounds stated in my objections.

(Testimony of Hearne Harper)

THE WITNESS: Mr. Davis' full name is Clifton F. Davis. He is an attorney at law. He has been McCann & Harper's lawyer ever since we started operating in this field, and he was my advisor at that time. I can't give you the date when I met Mr. Halliburton over at Mr. Davis' office, but as well as I can remember it was in November or the latter part of October. I can't place that date exactly, but it was after the Dallas Fair, and Mr. Halliburton was over here. At that conversation in Mr. Davis' office there was just myself and Mr. Halliburton and Mr. Davis.

Q Can you state exactly what was said at that conversation?

MR. LYON: Same objection as to all this testimony. The objection may not need be repeated, Mr. Westall, it being understood as applying to all this testimony, the objections I have already noted in the record to the previous questions?

MR. WESTALL: It will be understood the objections are repeated to each and every one of these questions regarding the conversation.

THE WITNESS: Well, our meeting there was for the purpose of Mr. Halliburton coming over here and starting this cementing business up, and he was to give me charge of it here in Louisiana and Arkansas—I was to have charge of the cementing. I contended that I was entitled to some interest in this cementing, that I thought I was the man that helped engineer the idea of cementing with plugs, cementing through the drill stem, and if there was any big money to be made out of it I was entitled to be in on it too. So Mr. Halliburton

(Testimony of Hearne Harper)

agreed to take me and let me work with him and have charge of Louisiana and Arkansas, and lawyer Davis would be our attorney in it. And Mr. Halliburton said he was doing this more just to keep down any lawsuits because just for the reason we had cemented wells with plugs two years prior to October, 1909, that didn't give us no right to this patent, or any royalty out of it, and he did say this, that he would pay my way to California if I would go out there, and he would see Mr. Perkins and Mr. Perkins would give me—he was satisfied Mr. Perkins would give me the royalty on all the wells cemented in Arkansas and Louisiana. He wanted me to take charge of it and take stock in it, that he was going to have some of the big companies here take stock in it. He said he was going to have the Magnolia and the Texas and the Gulf, all of them, in on this thing, and by having me in that way we wouldn't have any lawsuits or any more trouble. He said in that way we would avoid lawsuits; said of course if you have a lawsuit with some little fellow that don't have much money we can just get out and have a lawsuit with him and bust him up right now, because he wouldn't have the money to fight it, but he said we would be in good shape by having these other companies in it, and having me in it and he said there was big money in it. I was to stay away from these fellows over here and not give any affidavits or evidence, and not to fool around them; he said wait until he got this thing all straightened up. He said he was going to take the other big men in, give them stock and have them all work together, you see, that is, the big companies here. I don't I don't know that that agreement with these companies has been consummated; I have no positive proof of it.

(Testimony of Hearne Harper)

I talked to Mr. Halliburton over the phone in December, I believe it was, when I was at Sarah, Oklahoma, and called him up. That was over the telephone; I was present at one end. I wanted to know what day I was going to California, was the principal thing, to see Mr. Perkins in regard to giving me this royalty. He said, "I will see you later. I will be over in Louisiana in a few days and will look you up."

I had another conversation with Mr. Halliburton in Clifton F. Davis' office last week. Mr. Davis and Mr. Halliburton and myself were present. Mr. Halliburton met in Mr. Davis' office to read the law to try to find out whether these wells we cemented in 1908 had any bearing on the Perkins patent or not. I told him I cemented wells with the plug in 1908 and the spring of 1909, and I was sure Mr. Perkins didn't have any patent. And lawyer Davis said he was sure he did have a patent, because the law says two years prior to 1909, which would put it back into 1907. And Mr. Halliburton asked me which side I would be on at this meeting, and I said that owing to our conversations coming up the only thing I could do would be to come up here and tell the truth as near as I could; that I couldn't stay away if they sent for me. Mr. Halliburton left lawyer Davis and we talked for about an hour. When I told Mr. Halliburton I was coming up here and tell the truth, he just said, "You can't do no good because they have got to go two years behind 1909, the date of the application for the Perkins patent."

I had no conversation with Mr. Halliburton after that only up here in the office, I have seen him here since. Mr. Halliburton has been constantly attending this proceeding from the time we began taking testimony.

(Testimony of Hearne Harper)

ON

CROSS EXAMINATION

Mr. Harper testifies:

Q Mr. Harper, what part have you taken in interviewing these witnesses who have been produced here, and drilling them as to their testimony, those that have been here and the ones who are to testify yet on behalf of the defendant in this proceeding?

A I have talked to all of these fellows about it. I have talked to all of them, I think, and not only these witnesses but I have talked to a good many people around town.

I did not receive notice that I would be sued for infringement of the patent in suit for the cementing I have done for the last six years.

Q Did you understand you would be held liable for infringement if this patent was held valid?

MR. WESTALL: I object to that question as calling for a legal conclusion as to what constitutes an infringement, and also what constitutes liability, and I instruct the witness he need not answer such question.

THE WITNESS: R. E. Allison told me about it, and he said we was going to have to pay for cementing these wells here; that is all the penalty I know anything about having to pay, just to have to pay for cementing from now on.

Q BY MR. LYON: And did you not discuss the fact that the wells that had been cemented in the past would have to be paid for, and would be a considerable item of itself?

A Well, I don't think Allison told me that in that way. I think that might have come from Mr. Halli-

(Testimony of Hearne Harper)

burton. Later on that was discussed among us men in preparing for this trial; that they were going to try to make us pay for six years back; some of them mentioned that, I don't know just who it was. That is one reason advanced for everybody appearing as witnesses getting together and preparing to testify.

MR. LYON: Before going any further, I want to state on the record that this cross-examination is had subject to our objections without waiving any of the objections noted in the record.

THE WITNESS: The arrangement that Mr. Halliburton made with me was never carried into effect. He and I both agreed to it. Part of the understanding was that I was to refuse to give any support to any attack on this patent and refuse as far as I could to give any evidence against the patent. That was what I was going to do in return for his making me manager and looking after the cementing in this territory. Mr. Halliburton might go ahead with that understanding yet, I don't know; we haven't discussed not doing it yet; I don't know what will be the outcome.

Q Why did you fail to go ahead with your part of it?

A Well, this thing come up over here in the last three or four days, and with all these men in here and witnesses and everything, and the Mid-continent Oil Association knowing about it, and it seems like it got out all over town that I wasn't going to stay with the people here and tell the facts about it, and it looked like the only thing for me to do was to go ahead and testify and tell just what I knew and see what the outcome of

(Testimony of Hearne Harper)

it would be later. Mr. Halliburton has not yet signed any paper or agreement, and I never was made manager or anything; he has never given me anything of any kind, only his word. Over at lawyer Clifton Davis' office over there we talked about it, and he said, "I will make you manager of Arkansas and Louisiana."

Q Just how did you happen to meet Mr. Halliburton in *Dalls*?

A I saw his man in Mexia, I believe his name was Jordon. I was running a rig there near Mexia or Corsicana. I saw him there. I went over to see him, I wanted to find out what there was to this patent business; I wanted to know what there was to it, if there was really such a thing as Halliburton having a patent. I learned that he had such a patent from that letter that he wrote to some of these fellows here. They showed it to me. He said he would have to get together here and fight the patent. I didn't go to see Halliburton, I didn't know Halliburton was there; I went to see Jordon. I went to talk to Jordon and Jordon told me that he would talk to me over the phone that night. And he called up Halliburton. I am sure I didn't call Halliburton myself. Mr. Jordon called up and I talked to Mr. Halliburton then. I asked him what there was to this patent he had and he said, "I have got a good patent, that is, I haven't but Perkins has." And he wanted to know what I knew about it over the phone, and I told him I had cemented wells before 1909, and he said, "Well, I would like to meet you in Dallas tomorrow night and talk to you." So I went to Dallas, and that is the first meeting I ever had

(Testimony of Hearne Harper)

with Mr. Halliburton, and as the consequence of that I agreed to this arrangement I have testified about.

Referring to the first page of this Busch-Everett contract with me and Mr. McCann, which is here in evidence, the intention and meaning of the phrase "concrete casing" meant to set this 6 and 8-inch casing and put cement down the hole and pump it up outside the casing so it wouldn't leak water or gas, that is what that was intended for, so as to shut it off from water and gas so as to make a good job; that was what that was for; to shut off water or gas, blowouts or things of that sort. We put cement around the 10-inch to keep it from falling down after—we didn't care anything about whether it leaked water or not; it would help to shut off the gas and prevent a gas blowout, but it wouldn't do it altogether, because we didn't set much 10-inch over seventy to two hundred feet. It wouldn't shut in a gas well but it would act as a conductor.

In cementing that type of surface string we always siphoned it in from the outside. We poured it around the outside, and sometimes we poured it from the inside; didn't make any difference so we put a little cement around there; didn't make any difference as to any especial way of getting it there; didn't make much difference, it was not an important string of casing in this county. The casing we set on top of the gas or oil sand was the one that was important. I suppose J. B. McCann signed that contract. I don't know whether I did or not. I don't think I did. I can't remember whether I did or not without looking at the contract; I can't say for sure, but I don't think I did. Mr. McCann did sign it. I didn't

(Testimony of Hearne Harper)

see him sign it—I can't say I saw McCann sign it, but if I could see the original I could tell his signature. That is not the original, that is just a certified copy.

We kept drilling for these people and didn't write up any more contracts. That contract called for five wells, but we kept on drilling after that, though we didn't go back and make another contract because everything was satisfactory. This contract calls for six and eight inch holes.

Q As a matter of fact, didn't you have to make some of the wells drilled under this contract—didn't you have to set a 4-inch liner in order to shut off the water?

A Well, we done that in a number of wells we drilled for the Busch-Everett. We might have set some four inch pipe inside. If we drilled a well for them and the six-inch didn't hold, we would set four-inch or five and three-sixteenths, we set another string. In these first five wells, there was not a one where the 6-inch casing failed to shut the water off and we had to put in another string in addition to those called for by this contract.

Q Now, the five wells that were drilled under this contract, none of them you did that in?

A I don't know as I can name all of the five wells now, but I can remember a well or two that we drilled under that contract.

Q Can you remember distinctly and positively that the 6-inch shut the well off from water in each and every one of those wells?

A We set some eight-inch in some of these wells.

Q Would you say that none of them were finished with four-inch?

(Testimony of Hearne Harper)

A No, I can't remember a well being finished with four-inch under that contract. These wells are only the first five wells that we drilled for the Busch-Everett people. Of course we went on and drilled probably thirty or forty wells besides that.

Q And in these thirty or forty wells, what about those, did you have to set an extra string of casing to shut off water when the casing called for by this contract failed to shut the water off?

A We did with one well, I don't know just when it was, but it was along about 1910 or '11 where we had to set a liner. That was a well we drilled out in the lake quite a ways. I remember that well because we had a lawsuit about it. The records on that are in the courthouse up here. The lawsuit was with the Busch-Everett. I don't remember how the casing was set in that well; we just cemented it is all I know. I know we cemented the casing in there, and that is all I remember. I was not there when it was cemented. I was around there at different times. I went to the well and I can get you the record on it. I was there after it was cemented, and I don't remember just exactly when it was. I don't remember what method it was cemented by; with the plug, I suppose. I wouldn't state positively how it was cemented.

Q Hadn't you adopted the plug method in all your wells by the time this well you spoke of was cemented?

A That was later on, I didn't go out to every well we cemented, and fool around with them.

Q When did you discard these other methods and go over to the type of cementing, that is, this plug method aotogether?

(Testimony of Hearne Harper)

A Well, I suppose to this day once in a while we might—I don't know what method you are talking about, but we still run cement in the hole through the four-inch. I don't know as Mr. McCann was any more the inventor of this plug method than I was. I don't know about his being in doubt as to whether it was as good as the siphon method through the drill pipe. McCann when he was out there and he thought best, I guess he cemented each one the way he thought the best. It was owing to the condition of the well and where it was located.

I don't remember saying anything on direct examination about the reason the Jolly well and some of these others were cemented by other than the plug method was because Mr. McCann questioned whether the plug method was as good as the other. He didn't question me about it. Along back in there I wasn't paying much attention to that cementing job any more than I would suggest or tell or order it done, but the idea was to go out and cement these wells as we told them. Some of the drillers might have used different methods, I am not sure. I don't know altogether what methods McCann & Harper used, not this particular well. I can get from the books the date when that well was drilled. I don't know of my own recollection. I know it was in '11 or '12. I wouldn't say whether it was cemented by siphon or plug. I would say it was cemented, and that is all I will say. I was not there all the time; I went there quite often, but I am not in a position to say. I don't think I was there at all while the cementing job was going on. I may have drove up after it was cemented. I didn't stay at all of these wells; I went to and fro. On the well you

(Testimony of Hearne Harper)

speaking of I don't know whether the 6-inch casing was a success. I would call it that, though. If I remember we had some water in the gas, and they didn't want to pay us, and we had a lawsuit. They had a little water after the 6-inch was cemented, if I remember right. Lots of times we might have collar leaks, and if we had a collar leak it wouldn't be any sign that the cement was wrong. We figured that this particular job was a success, but the Busch-Everett Company wouldn't pay for it to begin with. We had a lawsuit, but they paid for it. After we set the 6-inch in the hole, we set a liner in there to see if it wouldn't cut off what little water that was in the well. The liner was 5-inch or 5-3/16, I don't know exactly; I can get the old record, though. The driller cemented that liner; I don't know whether I was there or not. I don't know how it was cemented, but I don't see how he could cement a liner in a hole like that without putting it through the 4-inch. I don't say that he did, but I say I couldn't see how he could do it without doing that. That would be the proper way to do it. He didn't set the 4-inch. When we set the liner, though, we had to set it on the end of our 4-inch pipe.

Q He didn't run any cement until the 4-inch, so the well was a 4-inch well at last as it was completed?

A No. There was cement put in there after the 6-inch, but I can't say just how. I know how I think it should be done. There wasn't any four-inch in the hole, we didn't cement four-inch. I am positive about that. There was four and a half, either four and a half or five and three-sixteenths, I believe; there wasn't anything of smaller diameter than that liner in the well to finish the

(Testimony of Hearne Harper)

well with. That is what I remember about it. That well was not finished 3- $\frac{3}{4}$; we didn't finish any like that.

Q When Walter George testified in this case and you talking to him during his testimony, he said that after the summer of 1909 every well that McCann & Harper had cemented was cemented by this plug method forcing the cement down the casing, and he was wrong about that, wasn't he, to your own knowledge?

A No, he wasn't wrong. I wouldn't say he was wrong. I don't know how every well McCann & Harper cemented myself. They were all cemented and that is all I know. I know they were all cemented and that is all.

Q Now, you were present in the First District Court of Louisiana in Shreveport on June 13, 1911, at the hearing of suit No. 14,503, entitled McCann & Harper Drilling Company vs. Busch-Everett Company.

A I was here present at a suit we had with Busch-Everett Company, I don't know whether it was that one, that is as far as I can say. There was such a suit as you have described. I appeared in the trial of that case, and testified as one of the witnesses. Mr. McCann was there.

Q I ask you if in your presence and when appearing for you as a joint plaintiff with you, Mr. McCann was not asked or shown the original of this Busch-Everett contract, of which you have filed a purported copy, and asked what was meant by that phrase as follows: "Q—Mr. McCann, what is mean in the contract by concreting of the casing? A—That was meant at that time to prevent a blowout. Q—From what cause? A—From a gas blowout. At that time we had not yet got on to concreting

(Testimony of Hearne Harper)

wells so as to cut off the water. Q—When the cement was used in the deep wells what was the purpose of using it? A—To cut off the water. Set the casing so as to cut off the water. We have gumbo and shale to set on in the deep wells. Q—It was found difficult to put the cement there for setting of the pipes? A—Yes, sir, when we first started the deep concreting for the Busch-Everett Company it was an experiment with them virtually.”

I show you this copy of transcript made of that testimony and ask you if you were present and that testimony was given on your behalf by your partner in explanation of this very clause of this contract in 1911.

MR. WESTALL: I object to the evidence as incompetent, irrelevant, and immaterial, also that is not the proper method of attacking the testimony of this witness. This witness has been asked to pass upon the testimony of another witness, and that the testimony of another witness since deceased, not proper testimony in this case; and we further object that there is no record of the authenticity of the purported testimony that is quoted by counsel.

MR. LYON: If counsel would look at the record handed the witness, which we will have identified by the Notary, he will find that this copy is certified by the Clerk and by the Judge of this particular Court.

MR. WESTALL: (After examining certificate) It is objected to as incompetent, irrelevant, and immaterial, no proper foundation laid to prove the facts set out in the alleged testimony of this deceased witness.

THE WITNESS: I don't remember whether I was in the courtroom at the time he testified or anything like

(Testimony of Hearne Harper)

that. I don't know anything about his testimony at this time. I was in the courthouse or right around there, but I can't say that I heard it. Mr. McCann and I were partners; I don't know whether they let me in the courtroom to hear his testimony or not. He testified in the case.

Q And that was a suit on this very contract, a copy of which has been offered in evidence here, was it not?

A No, the way I read this, this is about a deep well, and this contract only calls for 1600 feet. That contract calls for a well 1600 feet and we went ahead and drilled wells there 3000 feet. That couldn't be this transaction because it didn't call for a deep well.

Q This certificate on the copy of the contract reads: "I hereby certify that the above and foregoing is a true and correct copy of the original contract filed in evidence in suit number 14,503, entitled McCann & Harper Drilling Company versus the Busch-Everett Company as same appears on the docket of the First Judicial District Court of Louisiana." Did you not refer this morning to this particular certified copy as a certified copy from the original, the original of which you stated was over here in the court records?

A I referred to that as the date when we drilled the first well.

MR. LYON: The transcript has been shown to the witness, and shown to counsel, and which has been quoted from in the previous questions, which is now on the desk in front of the Notary is offered in evidence as Plaintiff's Exhibit "Transcript of Busch-Everett suit," and I ask the Notary to mark it accordingly.

MR. WESTALL: I object to the transcript being placed in the record as being totally incompetent, irrele-

(Testimony of Hearne Harper)

vant, immaterial, and being an attempt to get in the testimony of a witness since deceased, and no proper foundation has been laid for it, and furthermore it is totally incompetent, irrelevant, and immaterial; and I call counsel's attention to the fact that it is a different suit wherein different issues entirely were involved, and the parties not the same.

(Transcript marked "Plaintiff's Exhibit No. 2, transcript of Busch Everett suit.")

Q BY MR. LYON: Mr. Harper, isn't it a fact that at that well which is the subject of this suit, which you referred to in your direct examination and about which the suit arose, copy of the transcript of which has just been offered in evidence, in which you stated that you cemented the well, the 6-inch, or attempted to do so by this siphon method, or what you sometimes term the drill pipe method, in which you introduce or siphon the cement down through the drill pipe?

A I wasn't there, and I never attempted to cement it. I know what my orders was.

MR. WESTALL: I want to make a further objection to the introduction of that record—

MR. LYON: (interrupting) I object to the objection as coming too late. We had already started off on the cross-examination.

MR. WESTALL: I will object to it now that so far as this case is concerned it is purely hearsay evidence.

THE WITNESS: I don't remember who the driller was on that well or anything about that well. My orders were to cement the wells, to cement them the best they could, is all I remember about it. I don't remember whether I arrived at the well during or at the conclusion

(Testimony of Hearne Harper)

of the cementing of the 6-inch casing. If I remember the well, we were working on that well a week or ten days, and I was there a number of times during that time. They had trouble with that well. He got in trouble trying to lift his casing up. He lifted the casing for the purpose of putting the cement behind it.

Q You don't lift the casing after the cement is at the bottom of the well with the plug method, do you? You have the casing off bottom while the cement is being forced down, isn't that true, where you are cementing directly through the casing?

A No, in cementing some wells we set our casing on bottom with the plug method. During the time we are pumping the cement down the well the casing is not always on bottom. We had gas in there where our casing stuck and we just pumped right on down. It stuck off bottom.

Q But normally with the plug method, where you pump the cement down the casing with the plug before you start your pumping you lift your casing off bottom and leave it off bottom while it is being pumped down, do you not?

A Yes, sir, you lift it off bottom a little.

Q And after your cement gets down you lower your casing, you don't raise it, isn't that correct?

A No, sometimes we pick up the casing, that is, we work it up and down a little bit; something might hang. After the cement is pumped behind you lower the casing, with the plug method or with any method.

Q Now, with the siphon method you siphon the cement down and then you raise the casing, isn't that correct,

(Testimony of Hearne Harper)

and then pump the cement back and then lower it?

A Yes, you might—you have got to raise the casing up some.

Q Now, then, on the Busch-Everett well which was the subject of the litigation, when they attempted to raise that casing after the cement had been siphoned down, the casing was so tight they couldn't raise it by five lines; you remember that, do you not?

A They had a little trouble there some way. I remember they were having trouble there trying to raise the casing.

Q After putting the cement in the hole they were trying to raise the casing?

A What would they be raising the casing for?

Q After they siphoned the cement down?

A How would they get the cement behind it?

Q They were raising it preparatory to pumping it behind it or around, weren't they?

A I don't know whether they could get it behind it or not.

Referring to that siphon method, you have your casing on bottom while the cement is being siphoned down and your return is up at the top of the well between your drill pipe and your casing, when you are pouring it inside of the 4-inch and letting it siphon down the drill pipe, and after the cement gets down you pull the drill pipe out, and after that your cement is then inside of the casing. Then you lift the casing some and then pump while the casing is up off bottom, then you pump the cement around behind the casing. On this Busch-Everett well we had completed our operation to the point where we wanted to raise the casing so as to pump the cement in behind it,

(Testimony of Hearne Harper)

and when we tried to raise our casing we only had five lines on the derrick and we couldn't raise it, the same way if you had a plug, he had to lift his casing to pump his cement behind it. With any method he should have lifted his casing before he put his cement down the well.

Q Well, you just told me with the siphon method you left the casing on bottom during that time.

A Well, we do when we use the plug.

Q Left it on bottom while the cement is going down, you know what I am driving at.

A They are the same principle.

Q I am talking about when it is going down the casing from the top; one method you pump it down from the top, don't you?

A Yes. You have to lift your casing off bottom to pump it down; with either method you pump it down. With the siphon method you have your casing on bottom when you are siphoning down, and you have your return just as I have testified, between the 4-inch drill pipe and the casing, and during that time the casing is on bottom. With the siphon method, at the time you lift your casing off bottom, your cement is down on the bottom of the hole next to the casing, inside of the casing.

Q. But with your plug method, at the time you lift your casing, your casing is lifted before your cement is ever started down your hole?

A No, you set your casing on bottom, run your 4-inch in the hole, make the displacement, pour your cement in, put the plug in on top of it, then lift your casing off bottom and start the pump and pump it down.

Q You are talking about pumping down the plug through the drill stem?

(Testimony of Hearne Harper)

A The same thing. You pump your cement behind your casing with both. With the siphon method you pour your cement in there, but you still have it in the casing, and it has to be pumped down before it can get on the outside. At that point you lift your casing and then start to pumping. The cement is down around the bottom on the inside of your casing before you lift it, with either method, we have it up at the top, that is only a short distance.

I don't know that I said that this method of cementing was used on that well in the testimony I gave in this Busch-Everett. I don't believe I remember.

Q Now, I will ask you this: Did you testify in that case in reference to this well as follows: "Did you not, after you put the cement in, attempt to raise the pipe with five lines and could not do it," and your answer to that question was "Yes, sir." I show you your testimony to that effect.

A Yes, that is what this says, but it don't say anything about how I put it in there. This don't say anything about how we put the cement in the hole or anything about that. It don't describe anything; it don't describe siphon or anything else. I just simply said we cemented that well; there is no question about how we done it. We didn't argue about how it was done. There was nothing about a plug in this case that I know anything about. I don't remember how we cemented the 4-inch pipe in that same well. I don't remember whether I testified in regard to how we did that in that case.

Q I will ask you if you gave this testimony: "Mr. Harper, did you cement that 4-inch pipe? A—Yes, sir. Q—Now, what is meant by that? A—We put cement

(Testimony of Hearne Harper)

around the 4-inch pipe at the bottom to keep the water from running in at the bottom. Q—About how much cement did you put in there? A—About 200 feet. Q—Then you would sink the pipe in the soft cement? A—Yes, sir. Q—Then bore the cement out of the inside? A—Yes, sir. Did you give that testimony?

A I don't know whether we dropped it in there, but we put it in there. Well, I testified in that case, and I was there and testified, but I don't remember what I said.

MR. LYON: The transcript heretofore offered in evidence as a plaintiff's exhibit is again offered in evidence in connection with the cross-examination or the testimony of this witness.

MR. WESTALL: The transcript is again objected to, or receipt of the transcript in evidence is again objected to as incompetent, irrelevant, and immaterial, particularly those parts of the transcript which is now again offered as a whole which are not the testimony of this witness, and, therefore, as far as this controversy is concerned, merely hearsay; particularly do we object to the re-offer of the testimony or purported testimony of Mr. McCann on the ground that it is testimony of a witness since deceased upon issues that were totally different from the issues in the case now at the bar, and that the present defendant was no party to that case, and to him it is consequently merely hearsay.

THE WITNESS: I know Mr. Jim Clark. I talked to him about cementing wells, and to see what he knew about this patent. I don't know whether I was in attendance at this Busch-Everett trial at the time Mr. Jim Clark appeared as a witness and testified in that case. I believe he was a witness in that case. I talked to him

(Testimony of Hearne Harper)

every once in a while; I see Jim every month or so. I remember seeing him on the stand in that case. I first knew Mr. Clark in 1902. It must have been sometime in 1909 that he came to Louisiana. I am not sure it was not 1910, but I think it was 1909.

Q You remember his testifying in this same case as shown on page 95, as follows: "Q—How much experience have you had in cementing wells? A—Well, I have had all of my experience in that right here, had a lot of it, been drilling here ever since January a year ago, been at it ever since I have been here." Do you remember that?

MR. WESTALL: I object to that as not the proper method of cross-examination, as incompetent, irrelevant, immaterial and not the best evidence, and as far as this particular defendant is concerned it is merely hearsay.

THE WITNESS: Jim Clark was a witness in that case, but I don't know what he testified.

Q BY MR. LYON: Were you in attendance at that trial when Mr. Clark gave the following testimony: "Q—Who did you get your first instructions from? A—Well, I first undertook to follow McCann & Harper's rules of cementing, and I did not find it to advantage, then I got a rule of my own, which I thought better, which I used."

MR. WESTALL: I object to the question as incompetent, irrelevant, immaterial, not the proper method of cross-examination, not calling for the best evidence, being purely hearsay, and an attempt to prove hearsay, and an attempt to get in hearsay evidence by a wrongful method.

(Testimony of Hearne Harper)

A I don't know what Jim Clark knows about McCann & Harper's work. It is generally known that McCann & Harper have no system; McCann & Harper never had no patented system or anything else.

I would have to get a map to see whether McCann & Harper drilled a well for Busch-Everett about the same time or at the same time across the fence from the wells the Sun Company was drilling on the Barr farm, known as Barr farm Well No. 1. I don't remember a well known as Edwards No. 1. I remember Jim Clark drilling several wells on the Barr farm. I remember the first well he drilled on the Barr farm for the Sun Company. I wouldn't attempt to say when it was. I don't know whether McCann & Harper were drilling a well right adjacent to it for Busch-Everett at the same time. We drilled several wells for Busch-Everett. I couldn't say it was right adjacent to the Barr farm. The Barr farm is a big plantation, it runs all over that country. I don't remember about right across the fence. I was not present when Jim Clark cemented this Barr farm well that I said I remembered. I do not know how he cemented it. I don't remember a well we drilled for Busch-Everett next to the Barr Farm. I don't recall Edwards No. 1 drilled by McCann & Harper for the Busch-Everett next to the Barr farm. I don't say there was no such well, but I say I don't remember it.

Q You referred to finding a book this morning, I think you have it right in front of you. Will you let me see it please? (Counsel reaches over and takes a book out of the witness' hand.)

A I never referred to finding any book.

Q What is this book you handed me?

(Testimony of Hearne Harper)

MR. WESTALL: I object to that as not proper cross-examination. There was no direct examination concerning the book at all. It was handed to Mr. Harper, to give back to him to take away with him, because it has personal 373 memoranda and material incompetent and irrelevant, and matters long after the date of the Perkins patent. That is the reason no reference was made to it.

THE WITNESS: That is a record of some of the wells drilled from 1910 to 1916. It is not all the wells we drilled, but a few, some of the important wells. This is not the original record in Mr. McCann's handwriting. It is the handwriting of a fellow by the name of E. F. Stewart. He was with McCann & Harper, and kept some of the books, and worked on the wells and such things as that.

Q This book shows for example, at page 76, cementing a well. I call your attention to the log of S. H. Bolinger well No. 2, which was completed on February 5, 1911, which shows this statement: "Set 8-inch casing cemented eleven hundred and twenty-three feet." That is correct, is it not?

A Yes, that is what it reads, that is what Mr. Stewart wrote in that book.

Q What objection have you to this book being put in evidence?

MR. WESTALL: It is incompetent, irrelevant, and immaterial, and not proper cross-examination, and relates to facts and circumstances long after the dates that are material in this case. I do not care to have it in evidence because nothing in it is material to any issue herein in any respect.

(Testimony of Hearne Harper)

Q BY MR. LYON: It deals with wells in 1910, does it not? April 12, 1910, is the date of this W. D. Chew Well No. 1, is that not correct, Mr. Harper?

A That is what it shows.

MR. LYON: I ask that it be marked by the Notary for identification.

MR. LYON: Do you refuse to permit the reporter to mark it?

MR. WESTALL: I refuse to permit the reporter to mark it at all because it is unnecessarily depriving the witness of an important original record that could have no possible bearing or pertinency in this case.

MR. LYON: I ask the reporter to please indicate on the record if he follows the instructions of counsel for defendant and refuses our request that this record which has been produced by this witness be marked and made a part of this record and preserved for identification and inspection of the Court.

MR. WESTALL: The witness did not produce it in response to any proper questions on cross-examination or direct examination. No reference had been made to it but counsel simply reached across the table and took the book away from the witness and it has no possible pertinency to any issue involved in this record.

MR. LYON: It was handed to me by the witness when I asked him for the record he referred to on direct examination as to having found it.

MR. WESTALL: But he did not refer to that record as having been found and as I say it was not referred to on direct examination at all.

MR. LYON: We now notify counsel that we protest against his action in preventing the Notary from mark-

(Testimony of Hearne Harper)

ing and making of record this exhibit and will use it as the basis for a motion to suppress this deposition.

MR. WESTALL: Counsel knows where the book is and—

MR. LYON (interrupting): It is right here in the room and it is as much as we can do to ask the Notary to mark it because it was produced by this witness.

MR. WESTALL: It has no possible pertinency to the case. Why do you want it?

MR. LYON: I don't know why you are so anxious to conceal it, if it is the property of this witness. He admits having an interest in this case and I think, that is from his activities going around interviewing different witnesses from his own statement. Will the Notary please indicate on the record what action he takes in regard to our request.

MR. WESTALL: The Notary has his instructions so there is no use making any further argument.

MR. LYON: I am not going to make any further argument, but I ask for the purpose of this record that the Notary indicate therein his action as to whether he marks the exhibit or follows instructions of counsel for defendant by refusing to do so.

MR. WESTALL: Mr. Harper, do you want that book, is it an important record for you to keep or do you care what becomes of it; if it is marked in this case it will have to be returned by the Notary to the Court in California and there be filed of record in this case and my only object in objecting to it being marked is that I believe that it is totally irrelevant and to save you the inconvenience of being deprived of your private record when it is not necessary in the interest of justice and we

(Testimony of Hearne Harper)

notify counsel that he knows where it is, it is in the possession of Mr. Harper and if there is any notation in it that has any bearing in this case whatsoever and he desires to put it in he can get it there.

MR. LYON: There is no rule of evidence where a witness has taken the stand for examination and has in his possession any record to which he has referred on direct examination, about which we desire to cross-examine, making it necessary for us to go out and subpoena the same witness.

MR. WESTALL: He has not referred to that book.

MR. LYON: This is the book he referred to on his direct examination.

MR. WESTALL: I deny counsel's statement. He has not referred to this book at any time in any of his testimony.

MR. LYON: How do you know it is not unless it is in evidence? It was brought up here by the witness and why shouldn't the Court have it to see whether there is anything pertinent in it instead of trying to conceal all of the original records and produce no records except something somebody has written and which it would cost us a thousand dollars to take a look. This is indeed a *find* kind of record evidence.

MR. WESTALL: We deny the statement that we have concealed anything that could be procured from counsel or anybody else; on the same theory which you have advanced how do you know that all of the records in the office where we are now sitting do not contain

(Why)
evidence? What don't you file the whole office, the furniture, law books and everything else? There is just

(Testimony of Hearne Harper)

as much sense in doing that as making all of this long argument about nothing and I notify counsel if he persists in such silly procedure we shall certainly move to tax the cost of taking this deposition against the plaintiff.

THE WITNESS: This book contains logs from 1910 up. I don't know whether it shows Levee Board Well No. 2 or not. I haven't searched for it.

Q Beginning at page 80 is the log of Levee Board Well No. 2, which was the subject of that Busch-Everett suit?

A You have picked out a log showing Busch-Everett Levee Board No. 2. It don't show who it was drilled for or anything else.

Q Look at the note on the log, "Busch-Everett Company, McCann & Harper Drilling Company, successors to McCann & Harper, Drillers and Contractors."

A No, this is not the well you referred to. I don't know anything about this well.

Q This shows the 6-inch casing was set at 2113 feet, which is true, is it not? Isn't that the well the lawsuit was over with the Busch-Everett Company?

A Let me see. (Examining same) Where do you get that? This well ain't got anything to do with that well, got nothing in the world to do with it. It says it is the log of the Levee Board Well No. 2, and it shows the 6-inch casing was set at 2113 feet.

Q And the location of the well is given as 250 feet east of the northwest corner of the northwest quarter of the southeast quarter of Section 22, Township 21, Range 16, and about one mile southeast of the Hart's Ferry bridge at Styles store on Jeems Bayou in Caddo Parish, Louisiana.

(Testimony of Hearne Harper)

A Well, that ain't the well we had the lawsuit over; it was some other well. I guess that is the description for the location of that well, the log of it, but that is not the well the lawsuit was over.

MR. LYON: I ask the Notary to either mark the instrument as we request, or follow the instructions of counsel for the defendant over our objection and decline to mark it.

THE WITNESS: What right have you got to take my book? I haven't offered it as evidence. You just reached over and grabbed it out of my hand without my giving my consent for you to see it or anything else. I did not hand the book to you. You just reached over here and grabbed it without my consent or waiting to see whether I would give it to you or not.

THE NOTARY: I am noting that I refuse to mark the book because I do not think I have any authority to do so. I am noting that I have followed the instructions of counsel for defendant, and refuse to mark the book in the light of the circumstances.

(Book returned to witness, who keeps the same.)

THE WITNESS: I testified that Harper & McCann were big contractors in this country; we were considered big contractors. We did not lose this Busch-Everett work on account of their dissatisfaction over the way we were completing our wells. We did lose their work; we quit working for them; it might have been for various reasons. They quit giving us contracts. We kept right on drilling wells for different companies here in Louisiana. It is not a fact that our work wasn't holding out so good and that we didn't get any work from any of the recognized companies along in 1911 and 12 and 13 and from

(Testimony of Hearne Harper)

then on. I don't know that the Sun Company was letting any contracts along then.

Q Well, they had Jim Clark and Mike Mitchell drilling for them along in 1911?

A Well, they might have got their drilling cheaper from them. I don't remember that we had a contract from the Sun Company. I don't know whether we had any from any of the large companies; we might have been drilling wells for ourselves along then. We have drilled lots of wells for ourselves.

Q Now, isn't that exactly what you did do: you couldn't get any work from any of the big recognized companies, and you went out and bought up leases and drilled wildcat wells for yourselves?

A We might not have wanted to work for anybody else, I don't know that we asked anybody for work, but I can tell you one thing, we were drilling wells right along. My statement that we were a large contractor is not a little exaggerated. We might have drilled some wells for ourselves, but we have drilled wells for various people around the country at the time we were working for Busch-Everett, and I am now still considered a big contractor in this territory, by the people throughout the country. I drill lots and lots of wells yet.

Q But in those days, at that time, don't you know it to be a fact that you failed to get any work from the recognized companies, and had to go out and buy up property and drill it yourself so you could keep your rigs running?

A I don't know but that is the best way to do; do your own operating. I have no unsatisfied judgment against me on record in this county that I know of.

(Testimony of Hearne Harper)

Q You haven't an unsatisfied judgment for \$1,500.00 against you on record over here in the Court house?

A That might be true, but I have got just as many friends in the oil business around this town and in this country as anybody.

ON

REDIRECT EXAMINATION

Mr. Harper testifies:

Q Now, you spoke of some agreement that you made with Mr. Halliburton with reference to going in with him. Please state to what extent you were influenced in making such agreement by Mr. Halliburton's statement that in order to invalidate the Perkins patent you had to prove more than two years prior to the application for the patent in 1909?

MR. LYON: That is objected to as not being proper redirect examination, no such question having been asked on cross-examination.

A Halliburton said that we had to prove two years prior to October 9 to invalidate or knock his patent out; that the wells that I drilled in 1908 and '9 didn't have and bearing on it.

Q BY MR. WESTALL: What effect did that have, if any at all, in getting you to enter into such an agreement with him?

MR. LYON: Same objection; and it is further objected to as incompetent, irrelevant, immaterial, not calling for any facts; of no probative value, a mere conclu-

(Testimony of Hearne Harper)

sion, self-serving declaration on the part of the witness, and a statement of a mental condition on the part of the witness which has no bearing here.

A Well, I thought that would be the best thing to do, that if we had to prove back two years prior to 1909 we couldn't do that, and if he would go ahead and give me the State of Louisiana and Arkansas I would make a lot of money out of it, and there wouldn't be any trouble over it, and that was the way I was influenced by it.

Q BY MR. WESTALL: In other words, your idea was that the statement of Halliburton was a true statement, and in that event then the Perkins patent might possibly be valid?

MR. LYON: Same objection, and also as relating to this question that it is leading and suggestive and is a bald attempt of counsel to prompt the witness, and to suggest to him exactly what counsel wants the witness to testify, although the witness has had no such idea in his mind as reflected by his previous testimony.

A Yes, that was my understanding that if we couldn't show two years prior to October, 1909, his patent was good.

Q BY MR. WESTALL: Now, Mr. Harper, certain alleged testimony of Mr. McCann has been presented to you, in which it seems to be suggested that the process of cementing in 1908 and the early part of 1909 was experimental. I wish you would please explain fully whether or not any such inference, if such may be gathered from the testimony, is correct.

(Testimony of Hearne Harper)

MR. LYON: Objected to as calling for the conclusion of the witness, and not a statement of fact, but a matter which is to be passed upon by the Court.

A Well, most all of the wells we were drilling in 1908 and '9 were wells not to exceed a thousand feet. At that time a well in this country 2300 feet was considered a deep well and was much harder to handle. Now, we don't consider a well today 2300 feet hard to drill or any experiment at all. Of course, I guess that is what he meant by it in his testimony, that it was a 2300-foot well in the place of the thousand-foot that we ordinarily drilled.

Q BY MR. WESTALL: Well, in 1908 and 1909 were these jobs of cementing successful that you have described?

MR. LYON: Objected to as calling for a conclusion on the part of the witness.

A They were.

MR. LYON: And as having been disproved by the records, such as they are, if there are such.

THE WITNESS: The process of cementing through the drill stem hasn't been changed much since it was first devised in 1908, down to the present time.

Q Please state whether or not there has been any substantial change in the method of cementing with plugs through casing from 1908 or the early part of 1909, when they adopted the method of using the plug, up to the present time.

A We are cementing wells in this country just the way we did at that time; the same way.

(Testimony of W. A. Abney)

TESTIMONY OF W. A. ABNEY, FOR DEFENDANT.

W. A. ABNEY,

called on behalf of the Defendant, duly sworn, testifies:

I live at 1726 Line Avenue, Shreveport, Louisiana. At the present time I am a deputy sheriff. I have done a great deal of hauling in the oil fields. The kind of work I did in the oil field was to haul material, string pipe lines and general help in the oil fields, that is the kind of work I did before I went to work for the Sheriff's office. I went to work in the oil fields beginning in the fall of 1908. The only way I can get at that date distinctly, I used to own a plantation up there on Red River, known as the Hati Plantation, and I sold it to Williams Jordon and Foster in February, 1907. I looked after that plantation for them then until August, 1907, and I went in the contracting levee business with a cousin of mine and we taken a contract at Taylortown, and worked there until Christmas of 1907, and from there in 1908 we taken a contract three miles north of Shreveport in Bossier Parish, and we finished that up in February of 1908; and I went back up there and moved from the Hati Plantation to Dixie, Louisiana, in March, 1908. I stayed there then and got to working around in the oil fields, hauling different things for the oil men, and in the fall of 1908 the Busch-Everett Company leased a tract of land from the Dixie Oil Company to drill a well, and I don't know exactly what date it was, but it was sometime just before Christmas they begin to work, and they then contracted that well to McCann & Harper, and they

(Testimony of W. A. Abney)

brought a rig in there and moved it out on the location and drilled a well and finished it up sometime in February the next year, 1909. I did a good deal of their hauling, in fact I did most of their hauling that was done in hauling the pipe and rig and their stuff out there and material for the well, and their rig crews and drilling crew taken their meals at our place, and I had a contract with Mr. McCann and Mr. Harper to haul these people to the well, back and forth, and then after that I went to work for the Standard Oil Company the 13th of June, 1909. That is the way I can fix the day and tell how I know exactly where I was.

The Dixie well I referred to was cemented. They cemented the 10-inch pipe and then they cemented the 8-inch pipe, and when they set the 6-inch pipe they put the cement in it, filled the pipe full of cement and put a plug on it, and pumped it until it stalled the pump and the cement was on the outside of the casing, that was what was done. That is the first one I had ever seen cemented, with the use of a plug. I had heard of others being used in the fall of 1908, but I didn't see it.

MR. LYON: I object to that as hearsay and move to strike the answer out.

THE WITNESS: But this one I know they did that because I was there and saw it.

Q Do you know what the state of the art was generally, that is, the general common knowledge, as to the use of plugs in cementing wells through casing in the latter part of 1908 and the early part of 1909?

A Well, it was done just that way, that was the first one I ever saw with my own eyes. I had seen other wells

(Testimony of W. A. Abney)

that were cemented, but I didn't see it when it was put in them.

Q Did the people that you hauled back and forth and other people that you knew in the oil fields talk about cementing and discuss to any extent this method of cementing wells by the use of a plug pumped down through the casing as you have described?

MR. LYON: Objected to as no foundation laid, incompetent, not the proper method of proof and irrelevant.

A Well, we had a couple of wells around Oil City that had blown out and run wild. We had one at Dixie drilled in 1907, that blew out for two or three years, and they lost the well, and there was a lot of questions of about how they were going to stop it, and it was generally talked over the country about them cementing in the fall of 1908. I didn't see any cemented in 1908, but I know it was generally talked about before that.

Q And this general talk related to the use of these plugs through casing in cementing?

MR. LYON: That is objected to as leading and suggestive, and prompting the witness.

(Question withdrawn.)

THE WITNESS: The Dixie well is the first one that I was right there when it was cemented. I saw a great many cemented after that at different places, but I can't recall just what wells, because I was all over the oil fields from Oil City clear on up to Vivian and around Hosston, clear all around in that country. I remember this Dixie well so good because it was the first one I had seen cemented.

(Testimony of W. A. Abney)

Q What have you to say with regard to the use of plugs on these jobs?

MR. LYON: Objected to as leading and suggestive and not the proper method of proof, and as incompetent.

A Well, they used plugs on all these wells up there just the same way that was cemented; all I ever saw cemented was cemented that way.

ON

CROSS EXAMINATION

Mr. Abney testifies:

I went to work for the Standard Oil Company in 1909 and worked for them until 1912. I was right in the oil fields, hauling pipe and stringing pipe lines all over the country. I can't recall the names of the wells I saw cemented for the Standard Oil Company, but the Busch-Everett had lots of wells they cemented and the Standard drilled lots of wells on the Styles lease. I can't tell you the names of them. They was drilled sometime in 1909 and 1908; I didn't see any of those in 1908 but I saw those in 1909. I couldn't tell you the number, or the exact date of any in 1909. I saw the Standard Oil Company of Louisiana cement wells right there on the Styles lease in 1909. I am positive of that. I hauled that stuff for them there. They cemented them the same way as the balance, with plugs. I didn't stand right there to see them put the plug in there, but that was the only way they could put them in.

(Testimony of W. C. Wolfe)

Shreveport, July 3, 1924. 10 A. M.

TESTIMONY OF W. C. WOLFE, FOR DEFENDANT.

W. C. WOLFE,

called on behalf of the Defendant, duly sworn, testified as follows:

My name is W. C. Wolfe; my residence is Shreveport, Louisiana. My occupation is oil. I am connected with the Keene-Wolfe Oil Company, which is a corporation. I am president of the firm. The Keene-Wolfe Oil Company are producers, refiners and distributors of oil. I have been so engaged in the oil business since 1902. I began in Humble in 1902, and I worked in practically all of the south Texas fields, Beaumont, Sour Lake, Humble and others, up to 1907, when I came to Louisiana. I came to Louisiana as a driller in 1907, and after having drilled a couple of wells for McCann & Harper, contractors, I took charge of the production and drilling department of the old Caddo Gas & Oil Company.

I know Mr. Hearne Harper; he is a drilling contractor. He was one of the members of the former firm of McCann & Harper.

After coming here in 1907 I continued I guess about four months as a driller. I drilled and completed two wells for McCann & Harper, and then I took charge as superintendent for the Caddo Gas & Oil Company over their production and drilling department, supervising their work, and had charge of the production and drilling department.

In the latter part of 1908 or the spring and summer of 1909 I was a contractor. I organized the Wolfe

(Testimony of W. C. Wolfe)

Drilling Company in September, 1908, and began drilling wells under contract for the Gulf Refining Company, the May Oil Company, the Washington Oil Company and the Vivian Oil Company.

In the latter part of 1908 and 1909 I had knowledge of the process then used for cementing oil wells. I began cementing casing, that is, surface casing, in 1908, by siphoning the cement down around the surface casing. During the same year, just prior to my retiring from the Caddo Gas & Oil Company, we cemented off a strata of water in a well known as Smith No. 5 for Caddo Gas & Oil Company. Along in October or November, 1908, with the exception of just a few wells, we cemented all of the surface casing from then on, and are now cementing surface casing. Besides surface casing, as I stated a while ago we cemented off a strata of water in this Smith 5 of the Caddo Gas & Oil Company.

Q Now, do you know how the lower casing was cemented in the latter part of 1908 or 1909?

MR. LYON: That is objected to as assuming a fact not testified to by the witness.

A Well, my first or initial experience in cementing six-inch casing took place in 1909, in February or March. That casing was placed in the hole and the cement poured in the casing after we had displaced the mud and then pumped down. The barriers in that casing or plugs in that casing were made from, as well as I remember, cement sacks or tow sacks rolled together and tied up three or four feet long. That was in February or March, 1909, on Powell No. 1, at Vivian, Louisiana. We used to cement from then on practically every well we drilled in

(Testimony of W. C. Wolfe)

the high gas territory with the use of plugs, with some kind of a plug or barrier made to act as an indicator. When the cement was down and out of the casing your pump would slow up and thereby notify you that practically all of the cement was out of the casing and on the outside.

After the casing had been placed in the hole we ran in with the 4-inch pipe or such drill stem as we had, to displace the amount of mud or water sufficient to allow us to put in the amount of cement we desired. Then, of course, the cement was put in and the plug put in on top of it, then the swivel was placed back on the drill stem and the drill stem picked up an inch or two from bottom, and the pump started and ran until the barrier or plug would hit the bottom, closing down the pump, and indicating that the cement was on the outside of the casing.

To get the displacement for the cement you set the 6-inch casing on bottom, and naturally the 6-inch casing would be full of fluid at the top. You could not pour your cement in there without mixing it with the mud, so instead of taking the time to bail that water or mud out to let the cement have the place of the water, you run your drill stem in plugged at the bottom so it would push the water out and give you sufficient room in there for the amount of cement you were going to use. Then we would drop a plug in on top of it. We usually dropped a sack and plug on top of the mud, sometimes we didn't even do that because, while a few of them did, others didn't think it was necessary because they considered that the cement and mud would not mix sufficient to affect the cement.

(Testimony of W. C. Wolfe)

MR. LYON: I move to strike the last part of the answer of the witness referring to the action of others, as no foundation, incompetent and not the best evidence.

THE WITNESS: In cases where we omitted the sack on top of the mud, the next thing we put in was the cement, and after we put the cement in we put the plug in on top. We put the plug in the six-inch pipe on top of the cement. The drill stem was removed as soon as the mud was displaced enough or enough mud run out of the 6-inch, the drill stem was pulled out then, and then the cement placed in the casing, and then the plug, and then the swivel was screwed back into the 6-inch pipe. In that operation the drill stem was only used for the purpose of displacing the mud so as to make room for the cement. The plug we used—at least I started out myself by using sacks rolled up round and tight and the size of the casing. After we had put the cement in the casing was picked up off bottom an inch or two, and the drill stem was then out of the hole. When the plug hit bottom the cement was out of the casing and the plug was in on top of the cement—when it reached bottom it would shut the pump down or slow it down considerably and indicate that the cement was behind the casing, because the plug made of sacks, or any kind of plug, when it got to the bottom of the 6-inch would close the hole around the bottom of the casing and stop the pump.

In the early part of 1909 and prior to October 1, 1909, there were quite a few wells on which that process of cementing in which plugs were used through casing was used, and there was a number of concerns didn't use cement at that time, but there was quite a few that did use cement.

(Testimony of W. C. Wolfe)

MR. LYON: Objected to as no foundation laid, incompetent, and I move to strike the testimony on that ground.

THE WITNESS: Some of these concerns didn't cement the wells; they used packers, what was known as packers.

Q Now, in 1909, the early part of 1909, prior to October 1st, did you ever hear of the method of cementing through casing with the plug which you have just described, except in the oil fields among the operators and drillers?

MR. LYON: That is objected to as incompetent, irrelevant, and immaterial, not the proper method of proof, leading and suggestive.

A Yes, there was drillers and operators, especially the contractors who had contracts to complete wells, furnishing only the material, and who had to guarantee a casing seat in the wells drilled under contract; where they were guaranteeing their work, they discussed it quite a bit.

Q BY MR. WESTALL: Do you know to what extent that was generally known throughout this field in the early part of 1909?

MR. LYON: That is objected to as incompetent, irrelevant, and immaterial, no foundation laid, and not the proper method of proof.

Q BY MR. WESTALL: (Continued) What I mean to say is, was that a secret process that only one or two contractors knew of, or was it a matter that a considerable number of people were acquainted with?

(Testimony of W. C. Wolfe)

MR. LYON: Same objection, and also it is objected to as leading and suggestive and calling for the opinion of the witness.

A Well, the method of cementing in 1909 with the process we were using was pretty generally known. Of course, we had no patent on it and never thought of any patent.

MR. LYON: We move to strike the last remark of the witness out as incompetent, no foundation laid, and as volunteered.

MR. WESTALL: Perhaps I haven't made my question quite clear. What I want to know is to what extent was it known throughout the oil field here, the process you have described, was it a secret or was it such a process that other people knew about it?

MR. LYON: Same objections.

A There was no secret to the method being used, and it was commonly known by all of the operators, especially the contractors and drillers.

MR. LYON: We move to strike the answer of the witness as incompetent, no foundation laid, not the proper method of proof, and a mere conclusion of the witness.

Q BY MR. WESTALL: Did you ever discuss this plug method through casing with drillers or contractors in the latter part of 1909 or 1908?

MR. LYON: Objected to as irrelevant, immaterial, incompetent; as leading and suggestive, and not the proper method of proof.

A I did.

Q BY MR. WESTALL: And to what extent or how much did you discuss it?

MR. LYON: Same objection.

(Testimony of W. C. Wolfe)

A Oh, with all of the drillers and contractors, because we were all interested in cementing casing for the protection of the oil and gas territory and the protection of their own casing seats. They discussed the method—different methods of cementing and the improvements that might be made on the methods, and we did continue to make improvements on the methods of mixing the cement and put it into the casing, and the method of indicators they used so they would know the cement was practically all out of the casing, until it came into common use by all of the companies.

MR. LYON: We move to strike the answer of the witness as not responsive to the question, incompetent, no foundation laid, and not the proper method of proof.

Q BY MR. WESTALL: Now, do you remember any other instance or any other wells which were completed before October, 1909, in which this plug method through casing which you have described was used?

MR. LYON: That is objected to as leading and suggestive.

A I can't recall the dates of the wells or the names of the wells from sections, townships and ranges that we cemented during the spring and summer of 1909, but I know I did cement several wells prior to October 9, 1909.

Q How much prior to that date?

MR. LYON: Same objection.

A During the spring and summer months of 1909.

Q BY MR. WESTALL: Now, do you know or have you any knowledge of who devised or invented this process of cementing through casing with plugs that you have described?

(Testimony of W. C. Wolfe)

MR. LYON: That is objected to as incompetent, no foundation laid, and calling for a mere conclusion of the witness.

A The first use of cement in the Caddo field or the first use of cement that I had knowledge of was used by McCann & Harper, contractors.

Q BY MR. WESTALL: And you mean with this plug method?

MR. LYON: Objected to as leading and suggestive.

A I can't recall whether McCann & Harper started it or were the first ones to use the plug or barrier in cementing through casing or not, but I know they were using plugs and barriers in cementing casing in the Caddo field during 1909.

MR. LYON: I move to strike the last part of the answer of the witness as volunteered and not responsive to the question.

Q BY MR. WESTALL: Now, please state what you know as to the success or non-success of the cementing through casing with plugs which you have described, in the early part of 1909 or the latter part of 1908.

MR. LYON: Objected to as calling for a conclusion of the witness, and as leading and suggestive, and assuming a fact not testified to by the witness.

A The use of sacks in cementing casing and the methods that were used during the early part of 1909 was a success and caused all of the companies who were prejudiced against it at first to eventually take up the method, and they are continuously using it now. We had high gas pressures in this territory, and in some of the gas territory it would have been impossible to have

(Testimony of W. C. Wolfe)

completed a well and held the casing in the hole if it hadn't been for the use of cement.

Q BY MR. WESTALL: You spoke of the use of more than one barrier. Please state to what extent the use of two barriers or plugs has continued to the present date, explaining the matter fully.

A The method of cementing when they first began cementing here it was the opinion of a great many of them that where the cement was put in on top of the mud it was liable to mix with the mud and prevent the cement from setting, and in some cases the different concerns employed the use of two plugs or two barriers, one plug or barrier being placed below the cement and one above the cement, separating the cement from the mud or water below, and also separating the cement from the mud or fluid pumped in above the cement. Since that time, however, a great many of the concerns, included among which has been myself, only use one barrier or plug to act as an indicator to let us know when the cement was out of the casing. We have had just as much success with the use of one plug as we did with the two plugs.

MR. LYON: Now I move to strike the answer as not responsive to the question, and it contains largely volunteered matter.

ON

CROSS EXAMINATION

Mr. Wolfe testifies:

Q Mr. Wolfe, did you drill well No. 8 for the Arkansas Natural Gas Company and that of the Benedum Trees Company No. 1?

(Testimony of W. C. Wolfe)

A I had some contracts or did some drilling for the Arkansas Gas Company; I don't remember or recall the number of the particular wells. I do not remember the particular well you ask about. I don't say I didn't drill it; I drilled a number of wells for the Arkansas, but I don't remember the particular number of the wells. I don't remember whether I cemented that particular well you speak of or not. I haven't the log of that well; I haven't any logs at all. My files were all destroyed in a fire. I have none of the older records in connection with my cementing operations.

Q Did you drill the Arkansas Natural Gas Company's No. 12 Hanson and Mason No. 1?

A I don't recall the wells I drilled, all of them. I can't say whether I cemented that well or not? I don't remember the date when I was drilling for the Arkansas Natural Gas Company. I did some drilling for them, however, but I can't remember the date.

Q Did you drill Moore Well No. 8 for the Gulf Refining Company?

A I drilled for the Gulf Refining Company but I don't remember the names or the numbers of the wells; I cannot recall the date of the well. I drilled quite a number of wells for the Gulf Refining Company during the year 1908 and '9 that I did not cement at all. I don't remember the dates. I can't recall right now whether I cemented any of the wells I drilled for the Gulf in 1910. I remember cementing wells for the Gulf, but I don't remember just the dates of them. I hardly think it might have been after 1911 or 1912. I don't remember the name of the first well I cemented for the

(Testimony of W. C. Wolfe)

Gulf. I don't recall whether McCann & Harper used two plugs or one plug during 1909.

I drilled a well for the Pure Oil Company, it must have been in 1910. I don't recall whether I cemented that well or not.

Q Now, Mr. Wolfe, approximately the last of November did you have a talk with Mr. Erle P. Halliburton, who is here in this room, and Mr. James Ribb—I believe Mr. Ribb introduced Mr. Halliburton to you in your office when this matter of cementing was brought up, and didn't you ask Mr. Halliburton the date of the Perkins patent, and he told you 1911, and you stated you had invented the plug system yourself in 1910?

A No, sir; I never saw Mr. Halliburton before that I know of. I never saw him before today. I am sure of that. I have discussed cementing casing with Mr. Hearne Harper, for the last fifteen years, but not just prior to my giving this deposition or since you have been here taking depositions. I haven't seen Mr. Harper since he has been up here.

I talked to Mr. George some four or five or six days ago about this matter; I did not talk to him this morning.

I am a member of the Louisiana Branch of the Mid-Continent Oil & Gas Association. I don't know that that association is financing this fight against this patent. I haven't attended a meeting of the Mid-Continent in two years, and I do not know what they are doing. Mr. Westall came to see me to ask me to testify up here, the first time. Prior to that time I had discussed with Mr. Phillips the matter of this testimony being taken and

(Testimony of Mrs. B. M. Newcombe)

this story of mine, about the early use of this plug system. Mr. Phillips is the man in whose office we are taking this deposition. I discussed it with Mr. Slim Crawford.

I have heard that notices have been sent out in Louisiana to the effect that suit will be brought for infringement of this patent in suit because of the present use of this plug system without licenses. I have been using the system.

Q And you understand you are in the same situation in regard to the threat of infringement suit as the others?

A I have never been served with a notice. Myself and others haven't discussed my being as liable as they are.

I didn't see the article that appeared in the Shreveport Times on November 17th. It is just hearsay that these other parties have received notices: I haven't seen them and I don't know personally. It is hearsay from different concerns who told me they were notified. I have been using the plug system for cementing continuously in the last six years.

TESTIMONY OF MRS. B. M. NEWCOMBE, FOR DEFENDANT.

MRS. B. M. NEWCOMBE,

called on behalf of the Defendant, duly sworn, testifies:

B. M. Newcombe is the name. I am private secretary for Mr. J. Y. Snyder. I reside in Shreveport, Louisiana, on the other side of South Highlands, but there is no street number because I bought there to have plenty of room and to get off of the brick and mortar.

(Testimony of Mrs. B. M. Newcombe)

Q Have you ever compiled or made up any records relating to oil wells?

MR. LYON: That is objected to as irrelevant, incompetent, and immaterial.

A Yes.

Q BY MR. WESTALL: And what is the nature of those records?

MR. LYON: Same objection. It is understood, Mr. Westall, that all of this testimony given by this witness in regard to the alleged documents which were referred to by the witness Harper, and which you refuse to permit to be made of record, is subject to the objections that were noted in the deposition of Mr. Harper, and subject to our protest and notices and demands therein stated, and need not be here repeated.

MR. WESTALL: It is understood that all objections to questions relating to the two large volumes which have been produced, marked "John Y. Snyder," may be considered as having been repeated to each and every question concerning these records, but I deny counsel's assertion in making his suggestion that we refuse to have the pertinent part of these records placed in evidence.

MR. LYON: All of these objections we made to the competency of the books and to the failure to permit them to be made of record and so forth, which we made in the deposition of Mr. Harper, we desire to apply equally to the deposition of this witness, and all objections of every character relating to these so-called records might be made at the trial and need not be made at this time, is that correct?

(Testimony of Mrs. B. M. Newcombe)

MR. WESTALL: That is correct.

THE WITNESS: I compiled or copied or collected the data contained in these two records. They were collected from the companies drilling—the drilling companies and the owners of the different wells. We sell the set of books in which these records are contained for \$1000 a set. The records are a complete record of the log of the well from the date it began until the date it is completed, from the beginning of the history of oil and gas in Caddo Parish to the present time. As nearly as I can remember, that begins about 1907; that is just from memory of the logs I copied; the dates were from the logs I copied.

I got the log books of McCann & Harper, which consisted of logs of the wells that they drilled.

In compiling these books I used maps to have these wells spotted on them by the companies, the big companies, supposed to be good maps, and checked the wells that were drilled by whom drilled, and went to the persons owning or having drilled these wells and asked them for copies of their logs. The dates of their drilling or completion were most always on the log which I secured from the owners or drillers. I returned one book of logs to Mr. Harper, but another book I have been unable to find. It was a book about six by ten—I am guessing at the size, you understand, with a red cover, about an inch and a quarter thick. They were both red books, very similar, the one I returned and the one that was not found. I made a very thorough search in our office to discover those logs, and I thought that I had returned the book to Mr. C. W. Robinson; he in turn has

(Testimony of Mrs. B. M. Newcombe)

searched his office and has been unable to find the book. It may have been loaned to someone else, but hasn't been returned. There is no means of finding that book that I know of at the present time.

The books in question, marked "John Y. Snyder", are accepted as the most nearly correct record in existence by the operators and other interested persons in this field. There are no other complete records that I know of put out. I would just like to add that these log books were checked and rechecked by very competent engineers and geologists before they were copied.

ON

CROSS EXAMINATION

Mrs. Newcombe testifies:

MR. LYON: We make our cross examination de bene esse subject to the objections to be heard by the Court in regard to this subject, and without waiving in any manner such objections.

THE WITNESS: I have worked upon this compilation for the last four years. I stated that it was accepted as the most nearly correct record in existence.

Q Do you mean to imply that the companies from whom you copied these logs use these records in lieu of their original logs?

A In one case they do, particularly the Texas Company; I have sold them one set.

Q Isn't it a fact the Texas Company only use your record for reference to wells that they do not have their own records on?

A My records show all the wells. I can't tell what they use, I am not up there continuously. I did not

(Testimony of Fred L. Kyle)

exchange logs with the Texas Company in return for their letting me copy their logs. I did not pay one penny to the Texas Company for allowing me to copy their logs. It is a rule that all companies exchange logs with each other. I never in any case agreed to give a company a copy of the books in order that they would allow me to copy their logs. I accepted a reduction in the price of the book in some instances, but that was merely a personal favor and not compensation. I said in some instances; really there was only one instance when I did that. The Gulf Refining Company did not buy one of my books; they didn't need the book; they kept the entire records themselves.

(It is agreed that the Reporter and Mr. Halliburton shall go to the courthouse and get the original Busch-Everett contract and compare the certified copy in the record with it to see if it is correct.)

(Adjournment until two o'clock p. m.)

TESTIMONY OF FRED L. KYLE, FOR DEFENDANT.

FRED L. KYLE,

called on behalf of Defendant, duly sworn, testifies:

(Statement by Mr. Westall that the witness is ill and in no condition to talk at length, in which the witness acquiesces and states it is only with very great pain that he can talk at all.)

THE WITNESS: My name is Fred L. Kyle; my residence is 902 Fairfield, City; occupation oil well contractor. I have had experience relating to the oil well business since 1905. I was employed in the oil business in the latter part of 1908 and the spring and summer

(Testimony of Fred L. Kyle)

of 1909. I have cemented oil wells; I have had quite a lot of experience. In the latter part of 1908 and the spring and summer of 1909 I was employed by McCann & Harper, as a roughneck, helper I guess you would call it. I don't know how you all term that, but I was just a helper.

The first well that we cement with the plug pumped through the casing was a well we knew as Christian No. 1. The other wells that we cemented were cemented through the drill stem, but that is the first well I remember pumping the plug down through the pipe. We used the method right along after cementing Christian No. 1.

Q And how extensively was that method known or in use in the oil field here, if you know, in the latter part of 1908 or the spring and summer of 1909?

MR. LYON: In so far as the question relates to knowing, it is objected to as incompetent, irrelevant, no foundation laid, not the proper method of proof, indefinite and uncertain.

A The latter part of 1908—why, it was the first part of 1909, to my knowledge. This well I am speaking of was in the spring of 1909; I didn't know of any cementing in 1908. I say I didn't know of any cementing; of course we poured it in the casing, you know, we siphoned it around.

In cementing by this method of using a plug through casing, which I have referred to as having been in use in the early part of 1909, we poured our cement in—we put a sack—the first well we cemented, or the next well I would say that I helped cement, we used a sack to separate our cement from the mud. We poured our

(Testimony of Clifton F. Davis)

cement in on top of this sack, and when we put all the cement in then we put all the cement in, then we put a plug, dropped it in on top of the cement—had a gasket rubber on top of the plug, however, and we pumped it down, but we later quit using that sack in between the cement and mud, because we found they didn't mix, and from that on to this day all the wells I have cemented we just poured it right in on top of the mud. We used the plug so it would tell us when the cement was in place. It indicated that by cutting off the pump when it went to the bottom. After the pump stopped or stalled, in those days, in 1909, we used to leave the pressure on, I mean we closed all the valves and left the pressure on the well, because we thought the mud might throw it back up, but we never pay any attention to that any more. That was a successful method from the time it was used in 1909.

MR. LYON: That is objected to as calling for a conclusion of the witness.

MR. LYON: In view of the remarks of counsel for defendant at the outset of the deposition of this witness and in view of his obvious physical condition we waive cross-examination.

(Cross-examination waived.)

TESTIMONY OF CLIFTON F. DAVIS, FOR DEFENDANT.

CLIFTON F. DAVIS,

called on behalf of the Defendant, being first duly sworn, testifies:

My name is Clifton F. Davis; I am a lawyer; my residence is Shreveport, Louisiana. I have been engaged in

(Testimony of Clifton F. Davis)

the practice of law or as an attorney in Shreveport, Louisiana, since 1907. I am very well acquainted with Mr. Hearne Harper, of the former firm of McCann & Harper. I have known him since 1908 probably. I represented the firm of McCann & Harper in their legal matters from about 1908. I am acquainted with Mr. Erle P. Halliburton, who is present in this room with Mr. Lyon. I met Mr. Halliburton first somewhere around the first of November of last year, I think.

Q Will you please state the circumstances of your meeting with Mr. Halliburton at the time you have just mentioned?

MR. LYON: That is objected to as irrelevant, immaterial, having no bearing on any issue in this case.

A Mr. Halliburton came to my office in the Merchants Bank Building, I think probably in company with Mr. Harper—possibly they had agreed to meet there, and Mr. Harper and Mr. Halliburton discussed the—

MR. LYON: I object to the witness testifying to what conversations took place, as volunteered and not responsive to the question, incompetent, irrelevant and immaterial, a discussion not having taken place in the presence of or having been participated in by any parties to this suit.

THE WITNESS: I met Mr. Halliburton in my office in Shreveport. I can't say the exact date, but somewhere around November the first.

Q BY MR. WESTALL: Did you have any conversation with him at that time?

MR. LYON: Objected to as incompetent, irrelevant, immaterial, leading and suggestive, purporting to relate

(Testimony of Clifton F. Davis)

to an alleged conversation not having been participated in or had in the presence of any party to this suit.

A I did.

Q Who was present at that conversation at that time and place?

MR. LYON: Same objections.

A Well, Mr. Hearne Harper.

Q Anyone else besides yourself, Mr. Hearne Harper and Mr. Halliburton?

MR. LYON: Same objections.

A No one else.

Q Now, can you state what conversation took place? If so, please do so; if you can't state the exact words, state the substance of the conversation had at that time.

MR. LYON: Objected to as irrelevant, incompetent, immaterial, not binding upon the plaintiff in this case, and not having been participated in by the plaintiff in this case or any party authorized to participated in such conversation on behalf of the plaintiff in this case.

MR. WESTALL: It has already been shown on the record that Mr. Halliburton was present in the room, has been actively assisting Mr. Perkins as licensee for this territory on the Perkins patent and is as much a party to the suit in effect as though he were actually joined therein.

MR. LYON: We deny the statement of counsel except the statement that Mr. Halliburton has the exclusive right in this territory. He has no right to California, however, and this is a suit pending in California and Mr. Halliburton is not a party to the suit and has no authority and has never had any authority to represent the plaintiff in this case in any manner with respect to

(Testimony of Clifton F. Davis)

the case or with respect to the subject matter of the case.

MR. WESTALL: You say he is not the licensee in this territory?

MR. LYON: I say he is in this territory but has no right or interest in California and this is a suit between parties residing and living in California and involving transactions which took place in California.

MR. WESTALL: And he is relying upon that adjudication to validate and to support and make good his license in this territory so that he can get the royalties under that patent.

MR. LYON: He is no party to this suit and has no control or direction over this suit and he has no authority to represent the Perkins Oil Well Cementing Company in any manner or any respect.

A I don't recall the exact language at this time, but the conversation was relative to the cementing of oil wells, and the mode in which that had been done in Louisiana and the merits of the Perkins patent. Mr. Halliburton spoke of organizing a company to do cementing in Louisiana and Arkansas, and Mr. Harper thought that he would like to go into that company and have charge of the cementing, and while there was quite a good bit of talk about the organization of this company it never got down to the point where there was any agreement as to the charter to be drawn nor the amount of stock and so forth. Mr. Harper told Mr. Halliburton that he would like some of his stock in the Texas Company being operated by Mr. Halliburton, and Mr. Halliburton wanted Mr. Harper to go over and see Mr. Perkins or somebody who had charge of the Perkins patent in California, and go over the matter of the cementing of wells in this

(Testimony of Clifton F. Davis)

territory with Mr. Perkins or that person, whoever it was, in charge, and Mr. Halliburton requested Mr. Harper to get as correct data as he could on the early wells cemented by him and others, as to exact dates and the methods used, Mr. Harper having told him that these wells were cemented before the date of the application for the Perkins patent. Mr. Halliburton stated when Mr. Harper had that information that he would take him to California to see Mr. Perkins or the Perkins Company. Now, there was a conversation between them on at least two days, and what I have stated is about the substance of it, though I do not remember the exact words.

Q And was it stated what they would see Mr. Perkins or the person in charge of the Perkins patent in California about?

MR. LYON: Same objection, and the further objection that the question is leading and suggestive and an attempt to prompt the witness.

A It was to make an arrangement or some arrangement relative to the use of the Perkins patent in this territory or do business under that patent. The idea advanced by Mr. Halliburton being that litigation could be avoided by going over to see Mr. Perkins and making an arrangement before hand and getting in some different parties here and so forth.

Q Now you stated or spoke of a second conversation that was had later. Will you please state where that conversation was?

MR. LYON: Same objections.

(Testimony of Clifton F. Davis)

A As I remember the next day Mr. Halliburton came into my office and I don't recall that anything different was stated from what was said the first day.

Q Was there any discussion at any time as to what would be necessary to defeat the Perkins patent?

MR. LYON: That is objected to for the same reasons.

A Yes, I remember Mr. Halliburton made the statement that although the same process might have been used here before the date of the Perkins patent, yet Perkins had the right to go back two years before that time. Mr. Harper, at these interviews, went over with Mr. Halliburton the names of some of the wells on which cementing had been done here by McCann & Harper and probably other persons prior to the date of the Perkins patent.

Q And did Mr. Halliburton make any comment upon that evidence as being sufficient otherwise, as to dates?

MR. LYON: Same objections.

A No, he said that although the same or a similar process might have been used here before the date of the application, yet the Perkins patent could not be defeated unless the process or processes were used more than two years before the time of the application.

Q Now, at that time, or in relation to the proposition that you have outlined, did you have any correspondence with Mr. Halliburton or write any letters to him?

A Yes; soon thereafter the question began to be agitated here among the oil people—

MR. LYON: Just a minute. That is objected to as incompetent, irrelevant, immaterial, as not binding in any manner or competent in any manner with respect

(Testimony of Clifton F. Davis)

to the parties to this suit, and I also call the attention of the witness to the fact that if he purported to represent Mr. Halliburton in any respect in regard to these transactions, if they occurred, it would be quite an abuse of his duties and relationship as attorney to client to divulge the same.

THE WITNESS: I didn't understand that I represented Mr. Halliburton because no fee was ever paid me, no contract of employment was ever entered into, and no agreement relating to employment by Mr. Halliburton of me was entered into. Mr. Harper had been a long time client of mine, and I didn't know that I was representing Mr. Halliburton in any way in the matter.

When the matter was agitated I sent Mr. Halliburton a clipping from one of the local newspapers, and wrote him a short letter, and a little while after that, maybe a few days, I sent him a copy of an article that appeared in the Times about the cementing of the oil wells, and perhaps at that time also wrote him another letter, that is, to Mr. Halliburton.

Q Now, isn't this the newspaper article to which you referred, being the article offered in evidence by the Plaintiff herein and marked Plaintiff's Exhibit 1?

MR. LYON: Same objections.

A It is.

Q Now, can you produce any correspondence you had with Mr. Halliburton regarding the matter, or any letters written to him?

MR. LYON: Same objections, as incompetent, irrelevant, immaterial, not binding against any of the parties in this suit, and having no effect with respect to any of the parties to this suit.

(Testimony of Clifton F. Davis)

A I have found carbon copies of the two letters about which I have just testified.

MR. LYON: In addition to the other objections, we object to the purported copies as not the best evidence, no notice to produce or notice of any kind having been given with respect to the original.

Q What became of the originals of these letters which you have produced?

MR. LYON: Same objections.

A They were mailed to Mr. Halliburton.

Q At the address mentioned, Duncan, Oklahoma?

MR. LYON: Same objections.

A Yes, sir.

Q And I notice there is no signature to the carbons presented here. Who signed these letters?

MR. LYON: Same objections.

A They were signed by me.

Q Did you ever get any reply from Mr. Halliburton to either of these letters?

MR. LYON: Objected to as incompetent, irrelevant, immaterial, and not being binding upon or being competent with respect to any party to this suit.

A It is my recollection I did have a letter from Mr. Halliburton, but I was unable to find it, and I am not willing to say at this time that I ever received one from him.

(Counsel for Plaintiff, at demand of counsel for defendant, produces original letter from Davis to Halliburton dated November 19, 1923.)

MR. WESTALL: We ask that the copy of letter dated November 16, 1923, be marked as Defendant's

(Testimony of Tipton A. Snell)

Exhibit No. 5, and original letter dated November 19, 1923, be marked Defendant's Exhibit No. 6.

MR. LYON: We reserve our objections to the competency and relevancy and materiality to all of the documents.

(Documents marked "Defendant's Exhibits 5 and 6, Davis-Halliburton letters.")

(No cross-examination.)

TESTIMONY OF TIPTON A. SNELL, FOR DEFENDANT.

TIPTON A. SNELL,

called on behalf of the Defendant, duly sworn, testifies:

My name is Tipton A. Snell; my residence is Shreveport, Caddo Parish, Louisiana. I am a lawyer by profession and occupied at the present time in the oil business. I had experience with oil wells prior to October, 1909. I first engaged in the oil business in 1906 in DeSoto Parish, at which time I was living at Mansfield, Louisiana. Shortly after the Caddo field came in we local people there at Mansfield wanted to get some oil development in our community, and an old man Gullett, a farmer who lived there in DeSoto owned quite a bunch of land about seven miles southwest of Mansfield, and we local people subscribed from a hundred to five hundred dollars apiece to make up a pot to drill a well on this place, and we drilled that well there and finished it I think it was in the fall of 1906, when we completed it. We had a showing of oil but it was not successful in being a producer, but it was successful in the main purpose we had in getting the oil people's attention drawn

(Testimony of Tipton A. Snell)

to DeSoto. DeSoto later produced quite a bunch of oil. I believe we called that well the Gullett Oil Company's Gullett No. 1. It was the first well drilled in DeSoto Parish on the Gullett farm. A driller by the name of Arnette was the driller; I don't remember his initials or his given name. My connection was more in promoting the proposition, getting it through, than anything else, and I owned an interest in the well. It created quite a lot of excitement when it began to get out, and being one of those connected with the proposition I was very much interested in watching the well as it was drilled, and owning some lease property in there myself.

I fix the time of these operations in this way: Mr. Goss, a lawyer who is now dead—he died in 1908 with cancer of the stomach, and was ill quite a while, a year or more before his death—We had a panic in the United States in 1907, and it was prior to this panic and also prior to Mr. Goss' illness or before he was taken ill at all, and he was ill for more than a year, and he died in August of 1908. He was my partner at that time, or we were associated together in business, he and I and B. Y. Wemple, and I moved to Mansfield in February, 1904, and the oil development started in there during the second year of my residence there.

I know what is meant by cementing a well. I happen to know that the wells I mentioned were cemented because I was very much interested when they spoke of cementing. I wondered how in the world cement could be put in behind and around that pipe for more than 2000 feet below the ground. I wondered that when Mr. Arnette told me he was going to cement the casing to cut the

(Testimony of Tipton A. Snell)

water off from above, and I asked him about it, and he said, "Come out and I will show you." So I went out to see the job done, more out of curiosity and interest than anything else. It was a matter of curiosity with me, I couldn't figure out how that cement could be put down there more than two thousand feet below the ground. That was the first well I had ever seen drilled or had any connection with. I came from New York State to Louisiana in 1904, and I had never seen a well drilled before. I had some money invested in the proposition.

Mr. Arnette takes a 6-inch drill collar and a piece of plank about one or two inches thick, and sets the drill collar on top of the plank, and takes a pencil and marks it on the inside of that collar in around the shape of the collar, and takes a saw and saws this board around, and then takes his knife and whittles it off where it didn't quite fit the hole so as to make it work inside of this pipe. Then he strips off a piece of board about 18 inches to 2 feet long and sets this round piece of board that he has sawed out there on top of this 18-inch or 2-foot stick, and takes a couple of nails and drives it in there, which leaves the stick setting on the bottom of this round board off the edge about a quarter. His purpose was that the board wouldn't fall or tilt over on the side, but would go down square on the inside of the 6-inch. When he fixed that then he takes 25 or 30 sacks of cement and a bunch of sand, I think he mixed that cement and sand in the proportion of about one sack of cement to two sacks of sand he got out on the Gullett farm where he was then, and then he poured the cement on the inside of his 6-inch

(Testimony of Tipton A. Snell)

casing and takes this wooden board with this stick on the bottom of it, and puts that in there, and takes some cement sacks and puts about a handful of shale in these sacks, and puts that on top of the board. He then connects his swivel up to it and turns his pump on, raises his 6-inch up about six or eight inches off bottom and pumps that plug down to the bottom of the well, and when the end of that stick on the bottom of this board hits the ground it shuts his pump down, because, of course, these sacks on the top of that board would not permit the liquid to get by, and of course it would stop the pump, and then he set his six-inch back on the bottom and shut down the pump and let it set there for about ten days. When he shut the pump down he left the swivel to set there where it was, left the force of the pump and everything on. All that he did was just to let his 6-inch back on the bottom and cut his pump off and leave it set there just like it was, under that pressure.

We had a successful job, it shut the water off.

Since that time my experience in the oil business has been pretty general. I have been in that business considerable; been running a drilling rig myself, my own rig, and had a few of them run, and this method we are using right now. From 1906 I have continued to use that method; from that time on I have been engaged as an operator and owner since that time off and on. I haven't been at it all of the time; there may be some months I wouldn't do anything, perhaps there might have been periods as long as eight or ten months that I wouldn't drill a well.

(Testimony of Tipton A. Snell)

Q Prior to October, 1909, were you to any extent acquainted with the operations of the firm of McCann & Harper in this field?

A Yes, I knew McCann & Harper; they came in this country right along in those days, way back there in 1906 or '7, maybe previous to that. I think they were operating here when Caddo first came in, along a little after 1904, perhaps.

Q Do you know what method of cementing was adopted by McCann & Harper, say in 1908 or 1909?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and varying from his testimony.

THE WITNESS: Only in a general way. Practically that same method is used at the present day; some of them use a wooden plug and some of them use boards, as I just described, and some of them cut down a green pine tree and trim it off about 18 inches long and make a plug out of it; some of them do that and some use the same method we were using then. I don't know that we have made any change, the principle is identically the same. By that I mean that a plug of some kind is used.

ON

CROSS EXAMINATION

Mr. Snell testifies:

I haven't taken a case at law for the past eighteen months. I have not been engaged in the business of breaking leases; I never broke a lease and I have never been involved in any deal in which one was broken; I am absolutely positive of that. I have been engaged in the oil business and the practice of my profession. My con-

(Testimony of Tipton A. Snell)

nection with the oil business has been principally wild-cattling. I have drilled most of my wild-cat wells with the money of the larger companies; some of my money but principally theirs. I am absolutely sure I have never been accused of breaking any leases.

I have used this plug method of cementing in the last six years. I did not have a license to do so under the Perkins patent. I have heard something to the effect that the people who own the Perkins patent came in here and they were going to make us fellows pay for it, the ones that used it.

Mr. Phillips spoke to me about giving this testimony. Mr. Phillips asked me what I knew about it, about the matters along the line covered by the testimony I have given him, and I told him what I knew and he asked me if I would testify, and I told him yes, I was willing to testify to the truth. I don't remember who else I have talked to. I might have discussed it some with Mr. Crawford, I don't remember; not this particular suit however. In fact I didn't know there was a suit here until this gentleman, Mr. Westall, told me a few minutes ago that this was a suit involving other parties out in California. I talked to Mr. Westall not over five minutes ago, and he explained to me what this suit was, and that is the first I knew about it.

I don't know whether I have the log of this Gullett well I described or not. You can get it though, I am sure, in the Standard Oil Company's geological department. Of course it would be a copy. There are two or three places you will get water in there; you will get your first salt water at about eight or nine hundred feet, then

(Testimony of Tipton A. Snell)

you will get some more salt water about 1800 feet, and then you will get some more water about 2100.

The next well I was interested in was in that same locality that, I think, we drilled the next year. I think we cemented that the same way. In fact I was not on the job at that time myself, and I couldn't say positively as to that. It was cemented though.

I don't recall the exact well or the exact location of the next cementing job I was present at. You see, it would be like this: every one I have seen in this entire country was cemented. I don't know of a single well where I was there when the casing was set on it that was not cemented. I believe the next well I was on myself and saw cemented was along in 1909—in 1908. I think it was the well that belonged to Snyder and McCormick; John Champion was the driller on it. I was out there while they were cementing it, and I know the process they used. I don't recall what they did on that well; that was along there in the fall of 1908, I am sure of that. That was after I had known of Harper & McCann using this plug method. I only knew it in a general way; I never saw McCann & Harper cement a well in my life, though I have known McCann & Harper for a number of years.

I have seen the Gulf Company cement a well; I used to work for them. I didn't see them do so in 1909 because I was not around where they were doing any operating at that time, or in 1908. I don't believe it was in 1910 I first saw the Gulf Company cement a well. The first operation I saw the Gulf do was on the Jenkins 1, over there at Naborton. That well came in there either

(Testimony of Tipton A. Snell)

in 1912 or '13. That was the first Gulf well I saw cemented. I was working for the Gulf.

The Texas Company didn't show up in here until away later. The first I knew of the Texas Company coming into DeSoto was around '12 or '11—1912, I believe. I don't believe I was ever around any of the Sun Company's operations.

On the well I saw cemented in 1908 John Champion was the driller, but I don't remember the names of the roughnecks. I don't know where Mr. Champion is now; the last time I knew of John was down in Sabine Parish. You will find the records in Shreveport, I am sure. I don't know whether I have those logs in my office or not. I have no log of that well here to produce.

Q Did you ever hear of anybody cementing by any other method except that plug method?

A That is the only method I ever heard of in this field. They all use that same method. I am sure you will find every roughneck and every driller and every contractor in this locality has been using it since the early days of this field.

MR. LYON: We move to strike the answer on the ground that it is a mere surmise, volunteered, incompetent, no foundation laid.

THE WITNESS: I don't know when the Pure Oil Company first cemented a well. The first well I ever saw of the Pure Oil Company's drilled was on Mr. Pollock's place in DeSoto Parish; I believe that was either in 1912 or '13. They cemented that well. I was not on the job, but I know it was cemented because Mr. Pollock told me; that is the only way. I understand that is hearsay,

(Testimony of Tipton A. Snell)

but you asked the question and there was no way to answer it except to tell you how I knew.

I haven't discussed this case at all with the exception when I first came in out there Mr. Westall and Mr. Phillips explained they were taking testimony here and would like to get my evidence in the case.

Q As a matter of fact, just a few days ago you were in Mr. Lee Kinnebrew's office, and didn't you say that this well was cemented in 1904, that you have stated you saw cemented? You stated that, did you not?

A As I recall it, I discussed this method of cementing with Mr. Kinnebrew but not this case. Now you are asking me a different question from the question you asked me a while ago. You asked me if I had discussed this case, you didn't ask me if I discussed this principle of cementing before. I didn't tell Mr. Kinnebrew that this well was cemented in 1904; I told him that it was cemented in 1905 or '6; I wouldn't be positive about the exact year. I didn't tell him the next well I saw cemented was in 1913. We discussed it in Mr. Kinnebrew's office with Mr. Bell and Mr. Ribb, Jim Ribb, who used to be with the Pure Oil Company in here quite a number of years ago. I think Jim Ribb come in here along about 1911 or '12, somewheres back there, I don't remember the exact date. He has been in here a good long while. I first saw him in DeSoto on this Pollock well. As well as I remember the conversation with Mr. Ribb and Mr. Bell and Mr. Kinnebrew, we were just up there talking as we do lots of times, Jim and Lee and I, and just exactly what all was said it would be impossible for me to tell. I don't think I made any such statement as that

(Testimony of Tipton A. Snell)

the next well I knew of being cemented was in 1913. I state positively I did not. His mistake is in the date 1913, if he says that, because we were cementing a long time before that. I am trying to tell you as near as I can recall what I stated to these gentlemen at that time, though I know I didn't make any such statement as that. I don't think I told them about that well and then about the next well, because I don't remember the next well I saw cemented after this first well, because after I saw the theory of it it was so reasonable until it didn't excite my curiosity any more, and it has become so common since that time and the theory of it was nothing but just common horse sense after I saw what it was that it didn't excite my curiosity any more.

Q And every well you ever saw drilled in this country was cemented with that plug system, do you mean to state that?

A Oh, we used to set some packers in here, but I never saw a packer used, never was around a well in my life and saw one when they put it in there and used it. I know one was used just like we find out about anything else. The well is being drilled up there and the oil men tell us that the well is being drilled in such and such a way, and we know these men are truthful. I don't know as I recall the exact location, but I can recall some wells that the Texas set in there with a packer. That was when Naborton came in along in 1913. We were all using the cement then, they were using cement too, but after they would drill with the plug and still have water trouble they would go in there and set packers. They have had water trouble in every field I have

(Testimony of Tipton A. Snell)

been in yet. We were troubled with water in Louisiana some in 1906 the same as today. I was not familiar with the Caddo field up here in 1907 and '8 and '9. I was not operating in it, more interested in wild-cattling, drilling wild-cat wells. The first time I came into the actual production and interested in production was when Nabor-ton came in.

I don't know as I could pick out a specific well that I saw cemented by this plug process in 1912. I can pick out some in 1923. I cemented one of my own in 1923, one at Grand Cane, and then that well down there on the Harris place, and the one that Lee Kinnebrew and I drilled last year on the Tompkins place or Tompkins estate.

In 1922 I saw those wells over there for the Standard Oil Company cemented. I was there when they cemented them; I was there with the Standard Oil Company a while. I was in charge over there as field foreman for the Standard in 1920. In 1922 I saw the Elam Syndicate well cemented; I was present. About 30 or 40 sacks of cement were used, I suppose. I don't remember the exact number. I believe DeSoso was the driller on that well, Manuel DoSoto, but I am not positive.

In 1918 I saw some up here in Caddo in Pine Island, Ben Farrow and myself, cemented; I believe that was in 1918. I was present and saw the job. Ben Farrow was the driller. That was Sibley No. 1 well.

In 1914 all down through Red River and DeSoto I saw worlds of them cemented there at that time. I was working in the fields at that time.

I practiced law from 1913 up to about eighteen months ago. I quit to devote my attention to the oil business.

(Testimony of L. A. Pyle)

I couldn't give either one justice doing both. I am principally engaged in wild-cattin most of the time.

Q Now, you remember that Harper & McCann were using the plug method in 1907, do you?

A That was the general talk, yes, I know it from that fact, from having heard it talked, but from me being present and seeing it, no. But I understood in 1907 they were using the plug method.

ON

REDIRECT EXAMINATION

Mr. Snell testifies:

At the time that well was cemented in 1906 that I described, Mr. Goss and I drove out there together, and I think possibly Mr. Wemple was out there, and I think maybe old man N. P. Baker was there and old man Gullett was there and Arnette was the driller. I think he is in Russia now, and old man Gullett is dead, and I believe also that Earl Norris was there, I am not positive of that, though. That is the clerk down here in the Colonial Hotel. Earl used to live right down there, and I am pretty sure Earl was down there that day. His father's place being located very close to it. Mr. Goss is dead. Mr. Wemple's full name is B. Y. Wemple; he is at Mansfield.

Shreveport, July 4, 1924. 9:30 A. M.

TESTIMONY OF L. A. PYLE, FOR DEFENDANT.

L. A. PYLE,

being called on behalf of the Defendant, duly sworn, testifies:

(Testimony of L. A. Pyle)

My name is L. A. Pyle. My residence is here at the present time, 1146 Prospect Avenue, Shreveport, Louisiana. I am working in the oil field as a tool pusher. I have been engaged in that occupation since December, 1907. Prior to that time I was not in the oil business in any capacity.

When I came in the oil field in 1907 I was first employed by Howard Hughes, with the Hughes Tool Company; however I was employed to watch a lease in litigation at Oil City. Since that time I have been in the various fields of this country. I have done a good deal of wild-cattling out from Shreveport, some in Mississippi and Kentucky and California.

In 1908 and '9 I was in Oil City and Vivian. It is about 28 miles from Shreveport to Oil City, I suppose, or 30. Vivian is about 8 miles farther. In the latter part of 1908 and the early part of 1909 I was a helper on a drilling rig, working for Walter George as driller and McCann & Harper as contractors.

I had some experience in a general way in cementing Oil wells.

Q Do you know how oil wells were cemented in the latter part of 1908 and the spring and summer of 1909 in this country?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and as leading and suggestive.

A Yes, I know how they were cemented. We used three different systems of cementing; we used one known as the siphon system, where we poured our cement on the outside of the casing. That was usually done in cementing surface casing short strings; disconnected our

(Testimony of L. A. Pyle)

hose, pick the casing up, and by letting it down the cement being heavier on the outside would cause the water from the inside to come out through the hose, and the cement to go to the bottom of the casing. Then we used another system where we run our 4-inch drill stem in the hole to the bottom, and made a displacement in the 4-inch and put our cement in and put some cement sacks in on top of that, and pumped it to the bottom; then we pulled our 4-inch out, put our swivel on the casing and pumped until the sacks had gone to the bottom and cut the pump off. I believe that explains two ways that we cemented. And then another way we would set our casing on bottom and make the same displacement, and put our cement in and put a sack of shale—a cement sack with shale in it, and some dry sacks and pump it to the bottom, pick our casing up, of course, enough to get circulation, and pump it to the bottom until it shut the pump off. Well, now, that is just a little bit wrong. That may be the way I said it, but the way it reads is just a little wrong. Maybe I got ahead of my story just a little bit. Picking the casing off the bottom should have come before pumping the sacks down. It seems you have that in there twice, and I didn't intend to say it twice, yet maybe I did, but I didn't intend to.

The sack of shale was used on top of the cement to indicate when the cement was at the bottom of the casing on the outside. You see, the cement would be just in front of these sacks, and the casing being off the bottom six inches or a foot when the sacks got to the bottom would indicate the cement was in front of them and was

(Testimony of L. A. Pyle)

up on the outside, and the sacks would cut the circulation of the pump off.

Q Then what was done with the well under that system of cementing?

MR. LYON: This is all subject to our objection as assuming a fact not testified to by the witness, and as suggestive.

A We set the casing on bottom and left it set usually about ten days for the cement to harden, then we would go in and drill this casing out on the inside and make probably five or ten feet of hole and bail the casing dry to see whether we got a water shutoff, and then drilled the well in. In using the method in which sacks of shale were used, the only way we used the drill pipe we plugged the bit to make the displacement, and we would run maybe eight or ten lengths of the drill stem in to force the mud out to make the displacement to pour the cement in on top, and then put the sacks on top of the cement.

MR. LYON: This is all subject to our objections without repeating it.

MR. WESTALL: Yes.

THE WITNESS: When we would proceed as I have described.

Q BY MR. WESTALL: In describing the drill stem method, I believe the first or second method you referred to, you stated something about pumping the cement and sacks, which were above the cement in the drill stem, to the bottom. I wish you would please state or redescribe that drill stem method, and state whether the cement was pumped through the drill stem to the bottom, or how it was pumped and how far off bottom

(Testimony of L. A. Pyle)

the drill stem was at the time you pumped the cement in.

A Well, we picked the drill stem up just far enough to get circulation, probably six inches or a foot. The casing was setting on bottom. We pumped the sacks to the bottom, shutting similar to the method that we used on the casing, only we would pull the drill stem out when the cement was to the bottom—the sacks, we would pull that out and then put the cement around the casing.

Q Until the sacks stalled the pump?

MR. LYON: That is objected to as prompting the witness; the witness has already indicated that the sacks acted as an indicator when they reached the bottom of the drill pipe so as to tell when the cement had reached the bottom of the drill pipe and afterwards the drill pipe was lifted; this in addition to our previous objections which we understand need not be repeated.

MR. WESTALL: I do not think that the witness stated that.

MR. LYON: Well, without any further prompting from counsel I suggest that the witness be allowed to testify.

Q Please state how the sacks would indicate in the drill stem method the position of the cement; just describe how these sacks operated when put into the drill stem.

A Well, they would shut the pump off when they hit bottom of the drill stem. At that time the cement would naturally be up on the outside, up above. After the sacks reached the bottom of the drill stem we pulled the drill stem out, connected the swivel onto the casing, picked the

(Testimony of L. A. Pyle)

casing up far enough to get circulation, started the pump on the casing and the sacks would shut off at the bottom again. The sacks would stall the pump when they reached the bottom of the drill stem, but when you pick the drill stem up that would let the sacks on out.

Q Then where would the sacks be? After the sacks reached the bottom of the drill stem what became of the sacks and what did they do?

MR. LYON: That is objected to as a mere surmise, the witness having already indicated what he knows about it. It is objected to as a conclusion of the witness. He has already stated the hypothetical facts upon which the court may draw its own conclusion without this witness presuming to give his conclusion.

Q After the sacks reached the bottom of the drill stem what became of the sacks and what did they do?

MR. LYON: Same objection.

A They went out of the 4-inch when you picked the 4-inch up, the sacks would go out.

Q Then, they would be in the casing?

A Yes, sir.

MR. LYON: Objected to as leading and suggestive and prompting the witness.

Q BY MR. WESTALL: Then after that you would connect the swivel on top and then continued with the pumping?

MR. LYON: Same objections, suggestive and leading, and we call the court's attention to the grossly leading character of this examination.

A Yes.

Q BY MR. WESTALL: Now, do you know whether or not there was any set rule as to how far that drill

(Testimony of L. A. Pyle)

stem would be from the bottom at the time you pumped the cement in?

MR. LYON: Same objections.

A No, I don't remember.

Q BY MR. WESTALL: You don't know whether it would be near the bottom or raised some distance?

MR. LYON: That is objected to as having been answered fully by the witness, and counsel cannot impeach his own witness, and it is suggestive and leading, and an attempt to impeach his own witness now to get him to state he doesn't remember after having given a positive answer before.

A I don't know.

Q BY MR. WESTALL: You spoke of a method of using sacks of shale or cement and pumping through casing. Do you know whether or not any other kind of an indicator was used?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and as leading and suggestive.

A Yes, I know that plugs were used, wooden plugs were used too.

Q BY MR. WESTALL: When were these wooden plugs used?

MR. LYON: Same objections.

A My first knowledge of one being used was about April of 1909. I was working on what was known as the Christian well out from Vivian about three or four miles, and I was working on the night shift, however, night-watching, and they drilled the well into the gas before they knew that they was in the sand, so they wanted to set their casing after they discovered—

(Testimony of L. A. Pyle)

MR. LYON: Are you testifying to what you saw or what was told you about what had happened when you went on the job? Were you present when they did these things that you are talking about?

A I was there at night. I was talking about what they did in the day time.

MR. LYON: I object to that testimony as incompetent and no foundation laid and as hearsay.

THE WITNESS: I knew what happened in the daytime; I knew that they had drilled into the sand.

MR. LYON: How did you know it; did they tell you?

MR. WESTALL: I object to counsel continually interrupting the examination. He may bring out any fact he desires on cross-examination but I object to this continuous manner of interrupting the witness in his testimony.

MR. LYON: I move to strike the testimony of the witness as incompetent, no foundation and hearsay.

MR. WESTALL (continuing) And I suggest that counsel put in his cross-examination at the proper place.

MR. LYON: There is no reason for having this witness go ahead and state something that is obviously incompetent and inadmissible.

MR. WESTALL: Well, you will find out whether it is competent or not when you cross-examine.

THE WITNESS: They set the casing on this well and hung it about four or five feet off bottom about the top of the gas sand. However, they could get circulation on the casing, and they went inside to wash it out; thought they could drive it down or do better after getting it cleaned out inside, and the well blew out. So for some

(Testimony of L. A. Pyle)

cause or other, I don't know what, they were going back in the hole with the pipe, had three or four strands of pipe in the hole, and I was watching the well, and about daylight the next morning the gas stopped flowing, and I didn't know the cause, so I walked up close to the derrick, and the drill stem began to come out; come up out of the hole, went up to the crown block and stopped against the crown block for a little bit, and then there was an explosion, and the drill stem came out. That happened about daylight and they had a little trouble getting the drill stem down, but I didn't happen to be on the job, as I say, when they was doing any of that. I didn't see that part of it, but I know they cemented the well.

MR. LYON: I move to strike the answer of the witness as incompetent, no foundation laid as to his reference to knowing about what he did not see.

THE WITNESS: I saw the cement stacked up on the floor, I think about 50 sacks of cement and about ten or fifteen sacks of sand. We used sand in those days. And I saw a wooden plug about five feet long, and I suppose about five or six inches in diameter at the tool house, and a big bunch of shavings there where they had trimmed it with a drawing knife; but as to saying what they did with the plug exactly, I couldn't say. I was not there when they cemented the well.

Q Do they usually have 50 sacks of cement and a plug around a well for any other purpose than cementing a well, to your knowledge?

MR. LYON: Same objection.

(Testimony of L. A. Pyle)

A I don't know of any reason for doing it other than that.

The number of that well was Christian No. 1. Mr. George was the driller; Walter George was the driller and Fred Kyle was a helper, and Harmon Mahaffey was a helper, and I don't remember the other men, there was another one there I know but I don't remember his name. I have a very good reason for knowing the date this well was drilled and the time I worked on it, because I had my twenty-first birthday while I was on that well. I remember that very distinctly, because when I became of age I got some estate money from my home, and that happened while I was working on that well. I don't think there could possibly be any mistake at all about the date. I think, according to the best of my recollection, that well was completed somewhere about the middle of April in 1909.

I have heard of the use of a packer to shut off water. There were packers used in this field along about that time. There were packers used by the Gulf Company in 1910.

Q Do you know whether or not in the case of the Christian well you have referred to, the job was successful, that is whether the water was shut off?

MR. LYON: That is objected to on the grounds urged to the previous objections, and also as calling for a mere conclusion of the witness.

A Yes, it was successful. We got a nice gas well, about 50,000,000 feet of gas, with no water.

Q BY MR. WESTALL: Now, can you state whether or not that method of cementing with the plug

(Testimony of L. A. Pyle)

through casing was used about that time or before or after the time that you have referred to, and, if so, state the extent and the source of your knowledge?

MR. LYON: Same objections.

A Well, I don't remember definitely of the placing of any wooden plugs in the casing as an indicator at that time, I didn't happen to put any in there myself.

Q BY MR. WESTALL: Do you know whether or not of your own knowledge they were used or—

A Yes, I know they were used.

MR. LYON: Objected to as incompetent testimony, no foundation laid, vague, indefinite and uncertain.

Q BY MR. WESTALL: I wish you would, if you can, explain how you account for the fact that they used these packers in any instances in 1910, I believe you stated, if they knew of this cementing method in 1909.

A Well, it is pretty hard to state just definitely why an oil company will do a certain thing, but to the best of my knowledge I think the Texas Company was about the last company to adopt the cementing method, and the only good reason I can give for that was because Mr. Clayton, their superintendent, had a patent on a packer known as the Clayton packer, and he was trying to make this packer go, and like anyone else he used it; that is the only reason I can give for them using it, because the cementing process was known as a success at that time.

MR. LYON: I move to strike the last portion of the answer as being incompetent, no foundation laid, a mere conclusion of the witness, and as volunteered and not responsive to the question.

(Testimony of L. A. Pyle)

Q BY MR. WESTALL: Do you know whether or not that plug method through casing has been used since 1909 when you first saw it on the Christian well, and if so to what extent?

MR. LYON: Same objections.

A Well, the plug has been used for a good many years, I can't just—

MR. LYON: Same objections, and it is also objected to as assuming a fact not testified to by the witness.

A (Continuing) I know that cementing with a plug has been a success because out of my sixteen years experience in the oil field I have seen only one string of casing cemented that leaked, using the plug system.

ON

CROSS EXAMINATION

Mr. Pyle testifies:

Q When I interrupted you some time ago you had stated the plug had been used a good many years but you couldn't and you didn't finish that sentence. Please finish it, will you?

A Well, I think I intended to say that I can't remember the exact date rather for my first plug experience; I think that is what I intended to say.

I don't know as I have talked to Mr. Hearne Harper about testifying. I have discussed this cementing process with him a good deal, since last fall. I don't know whether Mr. Harper mentioned it first or whether I mentioned it first. I heard of Mr. Halliburton's inquiries here as to the method we was using cementing.

Q You were interested in seeing those who have been interested in this matter freed of having to pay any royalty under this patent, were you not?

(Testimony of L. A. Pyle)

A Not in a financial way, but as a matter of friendship and acquaintance with them. I worked on the Childs well. I don't say whether it was cemented with the plug or not; I don't remember the system we used there. I worked on five or six Busch-Everett wells. I don't know whether Mr. Doolittle was present or not. I remember Mr. Doolittle, but I don't remember whether he was present around these wells or not. I think Mr. Doolittle was made foreman in the production department for the Busch-Everett Company. The wells I worked on that were drilled for that company were Pitts 1 and 2, Christian 1, and I think Bell 1 and Jolly 1. I quit on Jolly 1; I quit before it was cemented with the exception of the surface casing. Pitt 1 was cemented, but I can't state definitely about the method. They were all cemented. I cannot name a well cemented by the plug in 1910 that I saw the plug put in the casing.

I worked for the Gulf about June of 1910. I don't know whether they cemented their wells in 1910; they didn't cement the one I was on. That was the only well I worked on for the Gulf. They landed their casing in that well with a packer.

The Christian well was drilled in what was known as the Vivian field. I don't remember that the only water in that Vivian field is above the 300-foot level, but there is only shallow water in that field. To that depth, 100 to 150 to 300 would be shallow. Shallow water was the only water reached above their casing seat.

I never worked for the Sun Company. I didn't see them put any cement in that Christian well. I was there at night. You told me you didn't want anything except

(Testimony of L. A. Pyle)

what I actually saw with my own eyes. I was working on the derrick floor just before it blew out. The pipe was standing in the hole when it blew out, wasn't doing anything; I mean the 4-inch pipe. There couldn't have been any cement put in up to that time. There couldn't have been any cement in the hole at the time it blew out; there wasn't any cement in there; I am sure there was none in there at that time.

ON

REDIRECT EXAMINATION

My Pyle testifies:

Q I want to ask you how many jobs did you actually observe of cementing through the drill stem back there in 1908 and '9.

A Well, I can't remember anything very definite about that process. I had only been in the field a short time, of course, and I remember mixing the cement, but I don't remember actually how it was handled.

Q But after that time was that cementing through the drill stem from your actual observations used to any great extent, that is, after they began using the plug through casing?

MR. LYON: That is objected to as having been answered by the witness; he stated he can't remember exactly.

A I don't remember just how many wells were cemented that way. I don't remember definitely.

(Testimony of Wesley Jordan)

TESTIMONY OF WESLEY JORDAN, FOR DEFENDANT.

WESLEY JORDAN,

called on behalf of Defendant, being duly sworn, testifies:

My name is Wesley Jordan. At the present time I am located at Camden, Arkansas. I am superintendent for Ray Hawthorne Oil Company.

I have been following drilling operations ever since 1905. I didn't start running a rig in 1905, but I have been working in the field ever since then. I have been in Texas, Oklahoma, Louisiana and Arkansas. During that time I helped on the rig and run a rig and have been superintendent for different companies. I came from Humble, Texas, up here to Shreveport on the night of October 27, 1908, and went to work in Oil City on the afternoon of the 28th for McCann & Harper Drilling Company. Mr. Harper's full name is Hearne Harper, Hearne H. Harper I believe, *W. H. Harper*; I don't know about his first name, but it is Hearne. I worked for them a few days just as a helper, and then went to running a rig for them the first part of November, 1908. I continued in that employment until November, 1918, with the exception that I got a vacation to drill a well for a certain friend of mine, when they relieved me for about two months.

I know Walter George. He was running a rig for McCann & Harper when I came up here, that is the first time I met him.

Q During the time you were working for McCann & Harper did you ever have any experience in cementing

(Testimony of Wesley Jordan)

wells, or did you ever observe the processes of cementing wells?

MR. LYON: That is objected to as assuming a fact not testified to by the witness, and as leading and suggestive.

A The first well I cemented—I cemented the first well I drilled for them after I went to work. That was the Pardue well down east on the Harrell place, or probably northeast, outside of Vivian, Louisiana, about three or four miles. We set the casing on the bottom of the hole and washed it out for a while, picked it up off bottom and pumped around it for two or three hours, and set the casing back on the bottom and made our displacement for the cement, and then put the cement in and put a plug in there, two or three sacks only, with a sack of shale on top, and then connected the pump on and pumped it down. When the plug got down to the bottom of the hole it stopped the pump, or practically stopped it, then we set the casing back on bottom and left the pump pressure on with the valve closed. Ordinarily you have got a release valve on the manifold, and if you don't want the pressure to stay on you open that valve. So in the place of opening that we kept it closed on the sand pipe to keep the pressure on the hole. The top of the casing was closed off with the swivel, the swivel and the closed valve on the sand pipe, to keep any pressure from coming back.

Q Please state whether or not you secured a water shut off in that job.

MR. LYON: That is objected to as calling for a conclusion, no foundation laid.

(Testimony of Wesley Jordan)

A We got a dry gas well, approximately 450 pound pressure gas well. I don't remember all of the crew we had on that job. We had one fellow by the name of John Delaney and John Mahoney, and I don't remember all the other boys we had out there. We had two more, but I don't remember who they were. That has been several years ago, you know.

Sometimes we have three or four strings of casing cemented on one job. We have had as many as four strings. You usually set the surface casing and the next string of casing you set if you get to a sand that looks like it might be good, why, you may set that, and then when you get to the gumbo or chalk rock you might set again.

Q So that sometimes you might have an instance where they would set one string and cement it by the process you have described, and in others they used the packer?

A Where they haven't got a strong water pressure above. They set the seat casing and set the ground string of casing also.

I was on a well out west of Oil City in December of that same year, 1908, that was set the same way. The well was drilled for D. C. Richardson, I believe.

Q After that were there any other wells that you know of of your own knowledge that were cemented by the plug and casing method?

MR. LYON: Objected to as assuming a fact not testified to by the witness, and as leading and suggestive.

A We cemented no other wells prior to January, but on the first of February we did at Dixie, Louisiana—

(Testimony of Wesley Jordan)

1909. It was a well that was drilled for the Busch-Everett Oil Company, and it was on Mr. Douglas' farm out west of Dixie about two miles. They called it the Douglas well, I think; I don't remember Douglas' initials. I don't know if it was referred to as the Dixie well; might have called it the Dixie well; I don't remember, though.

Q Do you know a man by the name of W. A. Abney who is deputy sheriff here?

MR. LYON: That is objected to as leading and suggestive.

A I know a man by the name of Abney; I don't know whether that is his initials or not. He used to live at Dixie.

Q Do you know whether he was present at the time the Dixie well was cemented?

MR. LYON: That is objected to as leading and suggestive.

A I think so. I think Mr. Abney was there.

MR. LYON: We call the attention of the court to the grossly leading character of this examination and of counsel arbitrarily putting the name of Mr. Abney in the mouth of the witness without his having suggested such a name, the witness' testimony showing obviously that he had no such thing in his mind.

THE WITNESS: In cementing this Dixie or Douglas well the first string of casing was set in the usual way up above the ground on the outside, but the next casing was set with a plug, the 8-inch, and we set others two different times and set them with a packer. As to why we used a packer on these strings I have mentioned,

(Testimony of Wesley Jordan)

in the first place we went into the gas sand and couldn't cement it, and it didn't go very deep in, just on top of the sand, and we thought we would set a packer temporarily and make a test of the sand, so we drilled in a little bit further, but the pressure from the gas didn't last very long before the pressure went down and pulled the casing in and cut this gas off, and we went on down.

Q I wish you would explain fully each step in the process of cementing this Dixie well there with the plug as you have mentioned.

MR. LYON: That is objected to as assuming a fact not testified to by the witness.

A We cemented that by making the displacement for the cement and putting the cement in with a plug on top and with sacks on top of the plug. Then we pumped the cement down in the usual way and let it set there for several days until the cement hardened.

Q BY MR. WESTALL: What was the plug used for and how did it operate?

MR. LYON: Objected to as calling for a conclusion on the part of the witness.

A The plug was used for a signal to indicate that the cement was on the outside of the pipe when the plug got down to the bottom. You see the cement, when it was on the outside of the casing, the plug stopped the pump when it was at the bottom. After the plug hit the bottom and the pump stalled or slowed down, we had gas pressure, and we closed the valve on it and left the swivel on and the pump pressure. We set the casing back on bottom as quick as the pump stopped. That Dixie or Douglas well was cemented the latter part of February—

(Testimony of Wesley Jordan)

the latter part of January or the first of February when we cemented the second string of casing. I think we started that well on the 9th day of January, 1909.

Q Now, after that time to what extent, if at all, did you use the method of pumping through the casing with the plug as an indicator in cementing wells? What was done about the method from that time up to the present date?

A Well, we used that some here, I think, in June, 1919, at Alden Bridge in Bossier Parish. That was a well up on the Cotton Belt about 19 miles.

Q Were these jobs you have referred to in which plugs were used successful in shutting off the water?

MR. LYON: That is objected to as calling for a conclusion of the witness, and as leading and suggestive.

A They were all successes, every one of them. I have never cemented a string of casing myself that ever leaked. I worked on one well that leaked but I didn't cement the casing. It leaked just a little bit.

There were other methods of cementing besides the plug and casing method I have described in 1908 and the early part of 1909 and since then. I worked on two wells where they were using a different method. That method was siphoning the cement through the drill stem down to the bottom of the hole and pumping it around.

Q And in these two jobs was any indicator of any kind used?

MR. LYON: That is objected to as leading and suggestive.

A None at all.

The drill stem method of cementing was used very little in view of the fact it was a little bit uncertain in two

(Testimony of Wesley Jordan)

different ways. It took a good deal longer to cement and then you couldn't tell exactly when the cement was on bottom and out of the casing. All you could tell by your pump gradually slowing down or working hard, but it took too long and the casing was liable to stick before you got far enough advanced to pump this cement out. The plug method was so much quicker and satisfactory on account of not getting your casing stuck, and then by the use of the plug you could tell about where the cement was.

Q Now, you have mentioned the use of packers. Do you know to what extent packers have been used in this country since the fall of 1908, when you first went to work for McCann & Harper?

A They didn't use them so much then only in making temporary tests when they got a doubtful looking sand. We have, though, set in a long string of casing, and after they made the test sometimes they set a packer just to make the test, before they would bail this casing and go on down to the next test. That is the idea of using packers.

Q Would the fact that packers were used in say 1910 or 1911 be any indication in your mind that the plug and casing method which was known at that time was not entirely satisfactory?

MR. LYON: That is objected to as calling for a conclusion on the part of the witness, as leading and suggestive, and as an attempt of counsel to suggest to the witness what he wants him to say, and to vary the testimony he has just given on direct examination, and counsel cannot impeach his own witness.

(Testimony of Wesley Jordan)

A The cement process was perfectly satisfactory, only sometimes in setting your pipe you would want to pull your casing and go further. If you set on the water sand you can pull this string out and carry this big hole on down to the next sand.

At the present time packers are never used until after you have done made your test on your first deep sand. You set your casing on the Nacatosh or Woodbine sand or whatever you are testing, you cement that casing, all of it, and if that sand is a failure you probably use a packer or a string of four and a half or something like that, but the first string of casing on the pay sand is always cemented, that is, in this country. They don't use that cement so much in Texas, that is, south Texas, because they don't have time to cement there, because it is liable to stick. They set in gumbo right on the seat.

MR. LYON: I move to strike the last part of the answer as not responsive to the question and as volunteered.

I don't remember but two who were present on the cementing of the Dixie or Douglas well in the early part of 1909. We had a fellow by the name of Brock working for me, and another fellow from Chicago; I don't remember the other two fellows.

ON

CROSS EXAMINATION

Mr. Jordon testifies:

I talked to a few different ones about testifying in this case before coming up here to testify. I talked to Mr. George a few moments ago, and I believe that is all I talked to. I saw Mr. Harper just a minute.

(Testimony of Wesley Jordan)

What little drilling we have done lately we have used this plug system. I have no license under the Perkins patent here in suit. I just used that for the company. I don't know whether they have a license or not. Mr. Harper and Mr. George are quite friendly with me. Mr. George hasn't explained to me that they are endeavoring to defeat the patent here in suit in order to avoid paying royalty on it. Mr. Harper just told me about the patent and this case going on, and that is all. They said they wanted to give the exact dates as near as possible for cementing. I don't remember whether they said they wanted to defeat this patent. Just said they wanted the dates I cemented wells. Of course he told me they needed the dates to show whether it was before or after the date of the patent but they didn't tell me the date of the patent itself. I don't remember what the date of the patent was, if I ever knew it. I don't remember whether he told me that the date I have given here would be ahead of the patent. He wanted to know the dates I cemented those wells is all I remember him asking me.

Q I am not asking you if you gave the dates here that you gave to them, but I asked you if you understood that these dates that you are giving are supposed to be ahead of this patent.

A I don't know what the date of the patent is, how could I know it? I absolutely don't know whether these dates I have given here are early enough to defeat the patent, because I don't know the date of the patent.

Q What do you think about it, what is your understanding about it?

MR. WESTALL: We object to the understanding of the witness. He has given the dates and stated that he

(Testimony of Wesley Jordan)

doesn't know the date of the patent. I think the court can draw his own conclusion. He has simply testified to facts and I object to him testifying what he might think when he has already said he doesn't know.

A Well, from all of the talk I have heard from different ones, just hearsay, I don't even know who said it, it was sometime in 1909, but I don't know just to be a fact. I don't think the ones from whom I gained that impression are the same ones who are interested in seeing this patent defeated. I think I got part of that understanding from something I read in the paper, and I heard them talk it on the street. I don't know when I read it in the paper.

I have not talked to Mr. Crawford about this. I am not a member of the Mid-Continent Oil & Gas Association, Louisiana Branch. I am not interested in any way in the outcome of this suit; I am not operating for myself, I am just superintending for the company. I don't know anything about whether the company I superintend for is interested in it or not.

Levee Board No. 2 well—I don't think I was on that well. I can't remember just where it was located. The name is familiar but I don't remember it. I worked on the well for the Busch-Everett out in the lake that McCann & Harper had a lawsuit over; I worked on it the last few days it was worked on. I remember that well. I was not present when it was cemented, and don't know if it was cemented. I drilled the well in after the casing was set.

I drilled Chew Wells No. 1 and No. 3, drilled by the Busch-Everett. Chew No. 1 was started in April, 1910.

(Testimony of Wesley Jordan)

That well was cemented by me. I don't know whether Mr. Harper was there or not. Mr. Doolittle was there at times; he was there when I set the casing, but I don't think he was there when I cemented. I am not sure. I don't believe Mr. Mercer was there when I cemented; I am not positive though. I don't think Mr. Mercer was there. I am not sure, but I don't remember him being there. We cemented two strings of that well, the surface string and the 6-inch. I remember how that well was cemented. We used the siphon there.

Chew No. 3 was cemented the same way. I don't remember anybody being present besides the crew. I think Mr. Harper was there; I don't think Mr. Russell was though; I don't know whether he was there at the time of the cementing. I can't remember whether Mr. Russell or Mr. Doolittle or Mr. Mercer was there; Mr. Doolittle came around usually at times. It wasn't his habit to stay around very much, and when he came he only stayed a few minutes.

I didn't work on the one hundred and ten acre Fee Farm that was drilled by Harper & McCann for Busch-Everett.

I did not work on the Edwards No. 1 well drilled by McCann & Harper. I never did see that well and never did work on it. I don't know anything about it only from hearing the boys talk about it. I have driven by it.

I never worked on Chalk Rock Well No. 1, Atchinson No. 1, drilled for the Busch-Everett. That well was over at Oil City, was it not. The Chew well was drilled in the summer of 1910.

I think I was on the Worley lease a few days on Well No. 6. No, I didn't work on the Worley well; I worked

(Testimony of Wesley Jordan)

on the Jolly wells. I did not work on the Allen Farm wells. I don't know anything about them. I worked on the Jolly wells, the Jolly gas wells. I worked on Nos. 5 or 6 and 4, I believe. I didn't cement those wells. I don't think Mr. Harper ever cemented them. I did not see them cemented.

I didn't work on the 110-acre Fee which was southwest of Vivian *near* Hart's Ferry.

Q Did you ever see the wells drilled by Clark & Mitchell?

A I just passed the rig driving around and seen them. I don't remember the name or the number of the well, but it was around Hart's Ferry. At the time I was working for the Standard Oil Company.

I drilled Jolly No. 9. It was a pretty good well. It is not a fact that that well developed salt water and was abandoned at 1084 feet. That well was drilled into the salt water on purpose. to get the production; it wouldn't make oil without getting into the water. That well was cemented. I drilled that well into the pay sand 10 feet and made a 75-barrel well. That was in the spring of 1911, I believe.

I have been on the Worley lease, but I never worked on it.

I don't believe I worked on the Alexander-McDowell well drilled by McCann & Harper for Charles G. Dawes, Trustee. I can't locate that well in my mind.

I don't think this Richardson well I drilled on had to be abandoned on account of salt water, not while I was on it. I remember we shot that well a time or two. They shot that well twice, I think.

(Testimony of Wesley Jordan)

I only worked on the Smith wells when I came up first, I helped a few days. I don't remember the number; it was already in and blowing when I went to work on it. I did not work on Atchison No. 1, three quarters of a mile south of Oil City.

I don't know as I ever saw the Gulf Company cement a well or have one cemented for them. I never saw the Sun Company cement a well that was being drilled for them. The only well I saw cemented for the Texas Company was one in Burt-Burnett, Texas, in 1919. I never saw one cemented for the Pure Oil Company, and do not know how they landed their casings. I never saw them cement one.

Q They were all large producers and operators in this field in 1910 and '11, were they not?

A No, not the Pure Oil, they wasn't even here at that time. If they were they were working under another name; might have been under the Standard, but I don't know that. The Sun Company came in here about 1909. The Gulf were the largest operators here, but I don't think that was their name; I believe the Caddo Oil & Gas Company, I believe that is what they called themselves then. They operated pretty strong. I have records of these cementing jobs I have referred to; I haven't got them with me; they are at Beaumont, Texas.

ON

REDIRECT EXAMINATION

Mr. Wesley testifies:

Q BY MR. WESTALL: What is the nature of those records?

MR. LYON: That is objected to as not the best evidence.

(Testimony of D. C. Richardson)

A I just made a log all the way down and noted how it was cemented and when the well started and when completed or abandoned, and just what was done.

Q And did these records show how the wells were cemented?

MR. LYON: Same objection.

A Yes. I was working for a man at that time that required that that be kept.

Q And in whose possession are they at the present time?

MR. LYON: Same objections.

A I think Fred Kyle had them. I sent them here about a year ago to Fred to drill an offset, and I think he has still got them; never did send them back; that is, part of them, and part of them are in Beaumont, Texas, and Fred Kyle has the rest of them.

Q What were these records, on what wells?

MR. LYON: Same objections.

A Well, it was the record of pretty near all the wells drilled up here up to 1919 or 1916, I think.

They go back to the second well I drilled up here. I don't think I got the first well, but they go back to the Richardson well in December, 1908.

TESTIMONY OF D. C. RICHARDSON, FOR DEFENDANT.

D. C. RICHARDSON,

called for Defendant, being duly sworn, testifies:

My name is D. C. Richardson; my residence is Shreveport, Louisiana. I am an oil producer. The first pro-

(Testimony of D. C. Richardson)

duction that I ever had in the oil business that amounted to anything was in 1907. In the latter part of 1908 and the first three quarters of the year 1909 up to October 1st I was producing oil in the Caddo field and residing at Shreveport. At that time I had several wells producing oil, two wells on Pine Island. I was interested in a well at Caddo City, and we drilled two or three wells during that time.

I knew the firm of McCann & Harper. They were well contractors, and they were in business in 1907 and '8, and continued on until some few years ago. I had a contract to drill a well for McCann & Harper in 1908. We drilled on six acres of land we bought in Fee, I don't know as it ever had a name; it was a dry hole and we owned the land; we never gave it any particular name. The name I operated under was The Richardson Oil Company.

Q And were your dealings with McCann & Harper under this contract—

A Richardson Oil Company.

Q Is this the contract you referred to, referring to Defendant's Exhibit No. 3, Richardson-Harper contract?

MR. LYON: That is objected to as incompetent, irrelevant, immaterial, leading and suggestive and not the best evidence; no foundation laid for the introduction of secondary evidence.

A Yes, I think that is a copy of the contract.

MR. LYON: I move to strike the answer of the witness as incompetent, not the best evidence.

Q BY MR. WESTALL: Now, I notice this contract, in line 8 thereof, 7 and 8, reads: "Second parties agreed to drill said well to a depth not to exceed 1600

(Testimony of D. C. Richardson)

feet, to set eight and six inch casing, to concrete eight inch casing, and after setting six inch casing to test same for first parties." At the time you made that contract did you understand what was meant by setting and concreting the casing?

A Yes, sir.

MR. LYON: That is objected to as assuming a fact not testified to by the witness, not the best evidence, incompetent, irrelevant, and immaterial.

Q BY MR. WESTALL: Please explain how you happen to know what was meant by setting and concreting casing at the time you entered into this contract, or your company entered into this contract.

MR. LYON: Same objections.

A Well, sometime prior to the time of making that contract they had been in the habit of concreting or cementing the casing out in the Caddo fields to protect the wells in case we ran into heavy gas pressure, to keep them from blowing out and losing the hole.

Q BY MR. WESTALL: Did anyone ever explain to you the method they used or methods that were used in concreting wells or cementing casing?

A Yes, sir.

MR. LYON: I call counsel's attention to the fact that I haven't had an opportunity to make an objection since the witness answered the question before I had an opportunity to say anything, but we now move to strike out the last answer of the witness as not responsive to the question, and volunteered, and incompetent, irrelevant and immaterial, no foundation laid. This objection applies to next to the last question and answer, because the

(Testimony of D. C. Richardson)

questions and answers were given so rapidly I had no opportunity to object. I also object to the last question as immaterial, irrelevant, incompetent, not the best evidence, no foundation laid for the introduction of secondary evidence, indefinite and uncertain.

A Well, it was a matter of general knowledge, and of course at that time I discussed with old man McCann myself how he intended to cement, but then it was a matter of general knowledge how it was done.

MR. LYON: I move to strike the statement in regard to the matter being general knowledge as being volunteered, not responsive to the question, incompetent, irrelevant, and immaterial, and not the proper method of proof.

Q BY MR. WESTALL: Please explain what that method was which you say was general knowledge and which was explained to you by Mr. McCann at the time or before you made the contract, copy of which you have before you.

A Well, they would get the casing set in the hole and then go in there and plug the drill stem and run it in and knock out enough mud, and then they dropped a plug in—in those days they put either sacks or shale on top of the plug, or washers made out of old felt or rubber, and tacked to the plug, and then poured the cement in, and then put some more sacks and stuff on top of that and pumped it down. That was the method that they used at that time, according to my recollection of it. I saw wells cemented, I don't remember just what wells I saw cemented. I didn't see this well cemented that this contract is on myself. I didn't see that, but I saw wells after

(Testimony of D. C. Richardson)

that that were cemented, and cemented a good many wells myself when I took charge of our own field work.

Q Do you know at the time you made this contract what the plug was used for?

MR. LYON: That is objected to as incompetent, immaterial, irrelevant, assuming a fact never testified to by the witness, and not the proper method of proof.

A It was used to separate the mud and cement and act as an indicator when the cement got down to the bottom; when these sacks hit bottom it would shut your pump off and later after that they got to putting a on top of that bottom plug so as to be more accurate in their cementing process.

ON

CROSS EXAMINATION

Mr. Richardson testifies:

The 8-inch casing was the surface string on that well to which the contract relates.

I have seen them make two or three failures of siphoning cement down the outside of the surface string. I don't remember what wells, some up around Vivian. I can not remember the wells. Sometime around 1907, I imagine, it was.

This bottom plug used in front of the cement in these jobs I refer to was generally made out of an old field pine. That was the general method here at that time.

I am a producer of oil here now. I am using this plug system. I have no license under the patent here in suit.

(Testimony of D. C. Richardson)

ON

REDIRECT EXAMINATION

Mr. Richardson testifies:

I usually use two plugs in this method; have been doing it for years. I first observed the actual use of either one or two plugs in cementing a well when I was present when I took charge of our own field work in 1910, when I actually got on the derrick floor and superintended the cementing of the wells myself. In testifying I am testifying to my general knowledge of what I understand was used prior to that time rather than my actual observation. No doubt about that.

MR. LYON: I move to strike out "No doubt about that" as volunteered, and not responsive to the question, and incompetent, a mere conclusion of the witness.

It was agreed and stipulated that since the giving of the deposition of the witness Jordon, counsel for defendant has communicated with the witness Kyle, and it is agreed that the witness Kyle, if recalled to testify again in this case, would testify that he has some of the records referred to by the witness Jordon, or copies thereof, but does not believe the same contains any reference or description of the method of cementing these wells.

It was further stipulated and agreed that the witness Newcombe, if recalled, would produce the sheets of her compilation of logs which constitute an alleged copy of original records of the log of Christian Well No. 1, and that the same may be copied into the record by the Notary at this point in the same manner and with the same effect as those originally copied along with the sheets referred

(Testimony of A. J. Graham)

to by the witness at the beginning of her deposition, all subject to the objections, notices and demands of the plaintiff of record being reserved with respect to such documents.

(Note: Page 493 in the original depositions on file in the Clerk's office is missing from the transcript, said page containing the log of Christian #1 referred to.)

(458) TESTIMONY OF A. J. GRAHAM, FOR DEFENDANTS.

A. J. GRAHAM,

called on behalf of the Defendants, duly sworn, testifies:

My name is A. J. Graham. My business is in the oil field, most all branches of the work connected with oil field work, contracting and producing. My first experience in oil field work was, I think, about the year 1889 in Pennsylvania. I worked a while for the firm of Lockwood & Patterson, producers, after which I worked for a while for Dunlap Brothers, drilling contractors, after which I went to the Ohio fields, was employed by the Manhattan Oil Company for a time, probably a year and a half. Then I went to work for the firm of Spaford & Henderson, drilling contractors, worked for them a while. In fact, I was interested in a well that Spaford & Henderson drilled for a bunch of us. After working for Spaford & Henderson I then was employed by the Ohio Oil Company for a number of years, I don't remember exactly, five or six years. Then I acquired some production from E. V. Wisebrough, operated (459) that for a while, finally sold it, went into the contracting busi-

(Testimony of A. J. Graham)

ness for a while. I sold out my interest there and went to Texas then, and went to work for the Sun Company. That was in the year 1903. I worked for the Sun Company in different capacities for about a little over thirteen years, in charge of different kinds of work, lease work, drilling and producing, also pipe line work. Then for a time I was with the Southern Petroleum Company, Humble, Texas, superintendent of drilling and production. After the company sold out, I then went to work for the Carter Oil Company in Oklahoma. I worked for the Carter Oil Company for about five years, district superintendent in charge of drilling operations and production, after which I returned to Texas. I worked for the firm of Cohen & Lebold for about two years and a half, producers, in charge of drilling and production. Then I came to California. I was employed by the B. G. T. Oil Company, Santa Fe Springs, superintendent of drilling, after which I helped to organize the Gruenwell Oil Corporation. Since that time I have been doing some work for myself in the way of working on some patents for oil field specialties.

(460) My first employment was just lease work. My second employment was tool dresser, that is, with Dunlap Brothers. My next employment with the Manhattan Oil Company was pipe-line work, just common labor to start with, after which I was made foreman for the time that I was with them. Spaford & Anderson, I worked for them as tool dresser. When I was with the Ohio Oil Company I worked as pumper and roustabout. I went to work for the Sun (461) Company in Texas as gang pusher, after which I was promoted to farm foreman.

(Testimony of A. J. Graham)

Later as assistant superintendent of pipe lines. I believe that is all. I have stated the capacities I have worked under.

My first experience in the cementing of oil wells was in Ohio, but it was an old method used there. When a string of casing got bad, we mixed up cement and poured it around the outside of the casing. Sometimes we would put in some cut rope, hemp rope, mixed with sand and water, and force that down on the outside. I don't remember when that was. It was during my employment with the Ohio Oil Company. It is probably about thirty years ago, maybe a little more than that. Then they started using the cement, as I say, by pouring it down around the outside of the casing. I cemented a number of wells that way there, and other wells were cemented by bailer method, putting the cement in the bailer, running it in, dumping the cement on the bottom, and picking the casing up and setting it back down in the cement until the cement would harden. Then the next experience that I had with cementing was at Spindletop, Texas. I don't remember the date. It was sometime in the neighborhood of 1905, or (462) possibly later than that. I couldn't give any—I have no data to refresh my memory on. We had a condition there that we did not get a water shutoff. As a rule, we made what was called a formation shutoff there. There was strata of different gumbo, in which we set casing. Sometimes we set it on a hard shale, but in this case we didn't have much gumbo to make it seat in. We also had some boulders in the gumbo, which prevented us from getting a good seat to get a shutoff. Well, we endeavored to put some cement

(Testimony of A. J. Graham)

in with the bailer, but it didn't work. There was a good deal of gas in the hole, and the mud we had in the hole was pretty heavy, and we got the cement mixed up with the cement in the hole. We did not have a regular dump bailer, it was just a dart bailer with an open top, and the cement would float out of the top of the bailer. Considerable gas in the hole too. So we failed to get our cement down that way. Then the driller and myself tried to arrive at some conclusion as to how we were going to get the cement down to the bottom. We talked it over for a while, and someone made the suggestion that we pump it down. Then the question came up about the gas in the hole, the condition of the mud; so then we figured on separating them. We figured that we could take and make a pair of plugs, which we did. We made one plug five feet long. It was 6-inch casing we were setting, and we made the plug about 5 inches in diameter and tapered it to a point at (463) one end, took a piece of rubber belting, got a measurement on the casing, cut out a piece of the belting and nailed on the big end of the plug. We made a plug of the same diameter, 2 feet long, square on both ends, also put a piece of belting on one end of it. We got our cement ready, bailed some mud out of the top of the casing, put our tapered plug in with the big end down. Then we put the cement in on top of that. Then we put the 2-foot plug above the cement, connected the pump up to it, and picked the casing up 2 feet off of bottom to allow room for the cement when it got to the bottom of the hole to go out by the taper in the lower plug, and go on the outside of the casing. So we pumped our cement down that way, and the tapered

(Testimony of A. J. Graham)

plug, of course, was up about 3 feet inside the casing. When the square plug got down to the top of the tapered plug, of course it put up a pressure and shut the pump down, after which we set the casing on bottom and closed our valves, and let it stand there, I think, twelve or fourteen days. We put in about, if I remember correctly, 12 or 15 sacks of cement. After the cement had hardened we opened the well up, went in and drilled out the cement, and had a water shutoff.

(464) About the only reference to the time of that that I could make, it was the first year that I was there with the company; I think I was on Spindle Top proper for something over a year. Then they transferred me to the pipe line department, and I don't remember just how long I was with the pipe-line department, after they transferred me back to the production department, but it seems to me it was something about probably four years. I couldn't be positive of the time. I went to Spindle Top in March, 1903. It is possible this cementing operation I have described was 1908. I couldn't be positive as to the date, because I have no data to verify it. I am not positive it was not later than that. It could possibly have been a year later than that, than 1908. (465) There is no way in which I can say whether it was 1908 or 1909. I remember the time of the year that this work was done, that we plugged the well; it was in the spring of the year.

Q Then you would say that the spring of 1909 was the latest that it could have been?

MR. L. S. LYON: We object to that as grossly leading and suggestive.

(Testimony of A. J. Graham)

THE COURT: Objection overruled.

MR. L. S. LYON: Exception.

THE COURT: The question is, would you or not say that is the fact?

A I couldn't positively say.

Q Now let me understand that definitely. In view of the talk between the lawyers, they may have forgotten the point. Mr. Graham, you are not positive that it was not later than the spring of 1909; is that what you mean to say?

A Yes.

Q It might have been later?

A It might have been. I couldn't give any definite time, because I haven't got any data to refer to that I had during that time.

Q BY MR. WESTALL: Did you make any record of the cementing of that well?

A Yes, sir.

Q What kind of a record did you make?

MR. LYON: We object to that statement, in the absence of any showing as to the production of the record.

THE COURT: Overruled.

MR. LYON: Exception.

A I could not recall exactly. We had regular drilling reports to make, daily drilling reports of the amount of feet drilled, the nature of the formation, and all items of work that was done on the job, but I don't recall just exactly how the record was made, whether it was stated in the record as I have stated it here, or whether the record might have been made, it might have stated that

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the casing was set in cement. There might have been no record of plugs made, I don't recall. At any rate, the plugs were used.

MR. LYON: We would like to reserve an exception to the witness's testimony as to what the contents may or may not have been of the record.

THE COURT: Yes; that part may go out, of course.

(467) THE WITNESS: That well was Sun Company's Bowles—I don't remember positively. It seems to me I have heard. The Sun Company changed the numbers of their wells. I don't recall the number that the Sun Company gives this particular well on the Bowles lease, but as I remember there was already three wells drilled on the lease by the Bowles Brothers. If I am not mistaken, this would have been No. 4, under those circumstances; but what the Sun Company's number on it was, I don't remember at this time.

I have been in touch some with the methods of cementing wells at the present day. I am familiar with the manner in which the defendant Owen cements wells, and the way he did cement the wells by the use of a plug. I had charge of the work for the Gruenwell Oil Corporation when Mr. Owen done some cementing for them, and he done several cement jobs, I don't remember now just how many it was all together. Two that I know of. I was there and observed those wells when they were cemented. The casing was run in the hole close to the bottom, the circulation secured, after which the cement was pumped in, and a plug put in on top of the cement, and the cement was then pumped to the bottom of the casing, in fact through the bottom of the casing, and up on the outside;

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after which the casing was set on bottom. Then the head was removed from the casing, and the casing was cut proper length for landing with clamps, and the contractors laid down their drill pipe, put up the drill pipe they expected to drill ahead with, while the cement was setting, after which they made a casing test before the cement was drilled out, found the casing was tight, drilled the cement out of the lower end of the casing, found the water was shut off all right, went ahead and drilled the well and completed it. (469) If I remember there was about, I think, 20 feet of cement in the pipe when it was drilled out. I don't recall just where the plug was struck at in the drilling out at this time. Of course, there is always some cement goes in on top of a plug when they wash out their tanks for finishing up a cement job. I don't know how much cement was on top of that plug. (470) There were two jobs done by Owen on that well using that plug. It is my recollection that the Owen plug was used on both of them.

At the conclusion of each of these jobs the heads were taken off. The job was successful. The heavy mud in the hole, together with the construction of the plug, prevented the cement from coming back into the casing after it had been pumped outside. The plug, of course, was constructed in the manner that it could not come back up in the casing from the excess weight from the outside. I was interested in the well. It seems to me as though we paid \$250.

THE COURT: That may go out.

THE WITNESS: There is an advantage in being able to take the head off of the well after the conclu-

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sion of the cementing job. There is quite a saving in time and labor, where you can take your head off, as I stated about laying down the drill pipe, you can go ahead and lay down drill pipe after you have anchored your casing, you can go ahead and get your casing ready and anchor it and break down your drill pipe and put up your other drill pipe in the derrick, and in other changes around that it is necessary to start further on the completion of the hole, which amounts to, I would say, at least four or five days time, probably a saving of \$800 to \$1000 on each job.

I am familiar with the method of cementing which is used by the Perkins Oil Well Cementing Company, in which plugs are used. I had Perkins cement a string of casing for me at (473) Santa Fe Springs when I was in the employ of the B. G. T. Oil Company. They did not take the head off on that job at the conclusion of the cementing.

Q With your experience as a practical oil man, will you state whether or not in your opinion the head could be removed from a well cemented by the Perkins process?

MR. LYON: We object to that on the ground there is no foundation laid. This witness is not competent to answer that question. We do not deny that he knows what the Perkins process is, as far as he can see what the Perkins Company does when it performs a cementing operation. We object to his competency or his foundation as to knowing what variations they can make, unless he can show he was in attendance at attempts or trials.

(475) THE COURT: I do not think that he should be permitted to testify as to any use or experiment with

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the Perkins process, so-called, until he has qualified as to a knowledge of that process. Now, his knowledge, in so far as he is qualified at this time, is as to the wells that were drilled in Santa Fe Springs.

MR. WESTALL: Then I will ask the witness to answer the question with regard to those wells that you have seen cemented at Santa Fe Springs.

MR. L. S. LYON: Same objection.

THE COURT: Same ruling. Overruled.

MR. L. S. LYON: Exception.

A Well, the work was done in the same manner that most cement jobs are. The casing is first run close to the bottom of the well, and circulation is secured, after which they put in a plug in the casing and pump the cement in on top of the plug and put in a piece of 4 by 4 timber (476) probably 10 feet long. Then another plug is put in on top of that. The pump is started up then, and mud pumped in on top of the upper plug, forcing the column of fluid down the casing and out the bottom. The lower plug, after it went out at the bottom, permitted the cement to go up around the outside of the casing. The 4 by 4 spacer, as it is called, didn't go clear out of the casing, but remained partly inside, until the plug on top of the cement came in contact with the spacer, which put a pressure on the pump and shut the pump down, after which the casing was lowered on bottom and let stand until the cement hardened.

There are different things that might keep the cement outside of the casing from flowing into the casing after it had been pumped outside. Of course, we know that the fluid in the casing is not as heavy as the cement that

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has gone on the outside of the casing, and if there are any leaks it will give the fluid a chance to come back up in the casing to the extent of whatever leakage is there, allowing the cement to come back inside farther. Of course, that is not always the case. It depends sometimes on the formation that the casing is setting in. The formation may make a shut off of the cement even, and keep it from coming back in. But it is not safe to remove a head with straight plugs before the cement is set, because if (477) the cement should be moving back into the casing again on account of the excess weight of the cement on the outside of the casing, in proportion to the mud on the inside, it might be moving at a time when the cement should be setting, and might impair the shut-off for that reason. The tight head just maintains the pressure on the casing to a certain extent.

Q With your experience and observation of the use of these plugs, could the tight head have been taken off?

MR. L. S. LYON: Same objection, if the Court please, as made a minute ago.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A I wouldn't consider it practical to take it off.

I couldn't state how many jobs of cementing by the Perkins process I have seen; quite a good many; I would say probably eight or ten anyway. (478) I saw some of them at Santa Fe Springs; most of them at Santa Fe Springs, and I saw some work they did at Brea, I believe, and Torrance. In any of those jobs I saw to my knowledge they did not take the head off of the well after the cement was in place outside of the casing, and

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they did not release pressure in any way by opening any cocks.

Q To your knowledge, they kept a tight head and pressure on each one of those wells; is that correct?

MR. L. S. LYON: That is objected to as leading and suggestive.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A That is my understanding, yes.

I gave an affidavit in this case with regard to my knowledge of the Spindle Top cementing.

Q Did you ever receive any communication from the Sun Company in regard to your giving that affidavit?

MR. L. S. LYON: That is objected to as not proper evidence in this case, communications between this witness and the (479) Sun Company.

THE COURT: I don't believe so, Mr. Westall. The Sun Company as such is not involved in this litigation, that is, it has not developed yet. Sustained.

ON

CROSS EXAMINATION

Mr. Graham testified:

Q Mr. Graham, was this plug method of cementing used on the rest of the wells that you worked on after the well you have described, while you were down in Texas?

A That is the only job that I did in that way; just that one. (480) We shut off water in the wells that I worked on after that in that territory with a formation shutoff. The driller's name on that well that was cemented was H. C. Roberts. The last time I saw him was

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in Wichita Falls, Texas. I don't recall what the other men's names were. I don't know whether Mr. Roberts is now in Wichita Falls, Texas. When I saw him there it must have been about over six years ago. He is the only man that I know positively was there on that job. I couldn't be positive whether that idea of using those plugs originated in my mind or Mr. Roberts', at this time, but it was one of the two of us at the time. I do not remember where we purchased the cement. We ordered our material through the (481) Beaumont office. I do not know where that cement came from.

Mr. Pew was general manager and I believe vice president of the Sun Company at that time, if I remember right. He was in touch with what was going on there in the Beaumont field at that time. He did not come out to this well at all that I have described as working on; he wasn't there at all. Reports were made to his office in regard to that well. I happened to be the drilling foreman and superintendent in charge at that particular time, as Mr. Sweeney was general superintendent, and he was over in Louisiana when this job was done. And after discussing (482) this matter with the driller, I called Mr. Pew on the phone, and talked it over with him, and he told me to go ahead and try to cement it that way. Mr. Pew actually knew what was done on this particular well I am talking about, at the time, whenever it was.

On these jobs that Owen cemented, at which I was present, in which he used the plug, I couldn't tell just exactly whether the plug was exactly like this Exhibit 6 here in front of me. It had dogs on it. That looks something like the plug. The valves were opened on the cir-

(Testimony of A. J. Graham)

culating head or the head taken off after the pumps were stopped on the same day on those two jobs, within a couple of hours afterwards. They were opened at once, that is, the valves were opened, but the head wasn't removed right immediately.

Q You opened the valves to see if there was any back pressure, and if there was any you would have closed them, would you not?

A Yes; certainly we would, before we took the head off.

Q You opened them to make that test, and then you left the heads on a couple of hours even then, isn't that true?

A Not on that account. We opened the valves after the pump stopped, to see if there was any return in the pipe. (484) If there had been, possibly we would have closed them right away. It probably was a couple of hours we left the head on the well before it was taken off.

The casing was landed, set on bottom, in those two wells. I don't know that there would have been any return in that well if we had used a straight plug and taken that head off, in view of the fact that the casing was landed on the bottom. It might be possible that setting the casing down on bottom and leaving the fluid in the well would have prevented any return irrespective of the head or the dogs on the plug, but in that case it would be a formation shutoff.

With the Perkins method I say it wouldn't be practical to take the head off, if you landed the pipe or set the pipe down in the cement, and keep the fluid in on top of

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the plug. You could take it off, certainly. The proper procedure would be to have it there, though, in any event, to see whether there is a return, so that you could immediately close the head if there happened to be one show up.

Q You say you don't take the heads off for a couple of hours after you stop the pump. Why don't you?

A There is usually considerable of cleaning up around to do after a cement job, clearing of lines and such stuff as that, to get ready.

Q Then the fact that the heads are left on the well during that two hours does not interfere with any of the other operations that you want to do around the well?

A No. Leaving the head on there— Sometimes it may and sometimes it may not. It didn't in this case.

Q In the usual case you have to clean up, and so forth, around the well, and there is nothing to be gained by taking the head off for a couple of hours, is there?

A It is immaterial whether the head is taken off or not, as long as it is open or shut. Leaving the well open convinces you of whether your cement is coming back up in the casing or not, whether your cement is setting where it belongs. The advantage, so far as handling anything around the well, that you have the little valve on this head open instead of closed is to determine whether the cement is coming back up the hole or not. With the Perkins process you can go and test that valve every once in a while to see, but I have never seen it done. I have never seen it open. (487) I wouldn't think it is practical to test that valve, because they have

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depended on the pressure in the casing to overcome any return in the pipe as far as possible. The pressure I speak of is the weight of the cement on the outside of the casing against the lighter weight inside.

Q That is a very small factor as compared with the weight of the fluid itself that is in the casing, is it not?

A It is not such a small factor. With 4000 feet of casing filled with ordinary drilling mud, the pressure exerted by that mud at the bottom of the casing, the hydraulic pressure, would be probably 1200 pounds, or in that neighborhood, somewhere, possible. Probably 1200 pounds to the square inch. That is the general understanding. Of course, I never figured it, as far as that is concerned. I know what drilling mud weighs. I have weighed drilling mud that weighed $13\frac{1}{2}$ pounds to the gallon, and water weighs about 8 pounds to the gallon, and cement that is used in oil wells weighs about three times as much as water. That is the general understanding. The cement weighs possibly twice as much as the mud.

Q Let's assume that you had put 500 bags of cement into the well, into a 4000-foot string of casing, that is, through a 4000-foot string of casing, and you were using the drilling mud that you have described. Now tell us what pressure would be exerted at the bottom by the column of fluid, by the weight of the column of fluid, serving to keep the cement from returning into the casing, and then compare that with the additional pressure that you say would exist because of the cement being heavier than the mud.

A That would be a hard matter to determine. It is not altogether a matter of mathematics. (489) As to

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how high this cement would go on the outside of the casing just depends on conditions in the hole. If the hole is caved out much around your casing in some places your cement may not go nearly so high on the outside. That is something that nobody can determine, how high the cement is going to go behind the casing. It depends on how much cement you put in and what the size of the hole is. If you use 500 sacks of cement, it looks natural that it could be up 100 feet from the bottom of the well in a 4000-foot hole.

Q Let's assume it extends up 100 feet. Now tell us what the pressure against that cement due to the weight of the column of fluid in the casing would be, and then how much greater the back pressure would be than that, (490) due to this extra weight of cement.

A Well, it would be just the weight of half of the column of cement on the outside. That would be 50 feet, wouldn't it? The weight in pounds can't be determined, because you don't know the size of the hole. If it is 100 feet high, I don't think anybody knows whether or not it makes any difference how wide the space is outside of the casing, if the cement goes up 100 feet. I don't know.

It is important to keep this column of fluid in the casing while the cement is setting or taking its set, to maintain as much pressure in the casing as possible, to keep your cement where you put it, in the first place, so it will remain still until it sets. Possibly 4000 feet would have as much as 1200 pounds to the square inch pressure due to the weight of that fluid. (491) I would think that the back pressure of the cement due to the difference in

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the cement and the fluid, that unequal pressure, is as great as 1200 pounds to the square inch. I wouldn't say that the pressure against the plug at the bottom is twice the 1200 pounds to the square inch. It would be the difference between the weights of the cement and the mud.

Q Do you think that this Owen plug that you have referred to, like Defendants' Exhibit 6, would hold the cement from coming back into the casing, if the casing was bailed out before the cement set?

A I couldn't say that any plug would keep it from coming back. It wouldn't be practical to take any of them out.

Q Do you think that plug would hold that cement back under those conditions?

A I wouldn't try it, (492) for fear it would come back.

Q This pressure that you say is shut in by closing the valves on the tight head—you are talking about excess pump pressure, are you not, something that is in addition to the weight of the column of fluid?

A I was just talking about the weight of the fluid. The weight of the fluid would remain there whether you closed the valves or not.

Q Now, what pressure do you keep in the casing by closing the valves, that is not kept there when the valves are opened?

A That depends on the condition of the connections, and so forth, whether there is any leakage or not.

Q Well, assume that there is not any leakage, what additional pressure is maintained in the casing by closing the valves?

(Testimony of A. J. Graham)

A That is a matter that can not be determined either. If there is any such pressure, its source is the weights and pressure put against it to force the cement down. That is the pump pressure, the pressure that is built up by the pump, that (493) you pump your drilling mud in on top of the cement with. That is the pressure I am talking about.

Q Then what you are trying to do by closing in the tight head is to maintain as long as you want that pressure—that is something in addition to the pressure due to the hydraulic weight of the fluid in the casing, isn't that correct?

A Well, the pump pressure may not stay there very long. If there is any pump pressure, I don't think that it is an additional pressure to the pressure of the weight of the fluid. I should think it is the same pressure. It might be a trifle over. Of course, it would have to be a little excess pressure to circulate.

Q If you let that pressure off of the well and the cement didn't come back, I mean this excess pressure, and just left the weight of the fluid on the well, you would still have all of the pressure against the plug due to the weight of the fluid, wouldn't you?

A You would have the weight of the fluid against it, yes. There (494) would be no additional pressure maintained in the casing by closing the head. It would only be to prevent the column in the casing from coming back up the hole in case there was a channel around the shoe of your casing. Your casing is always full of mud at the top. This pump pressure that you close in when you close your circulating head doesn't stay there for any

(Testimony of C. G. Shand)

material length of time. But if your mud started to come back, your head would stop it and prevent it from coming any farther.

Q And you could do that with the defendants' arrangement in those two hours, by just closing the valves if the mud started back, couldn't you?

A I don't know.

Q Well, you have left your head on there for two hours, you say, after you have stopped your pump, and if at any time during those two hours the cement started to come back into the casing and there was a return at the top of the casing, you could close those valves, couldn't you?

A You could.

(495) TESTIMONY OF C. G. SHAND, FOR DEFENDANTS.

C. G. SHAND,

called on behalf of Defendants, duly sworn, testifies:

My name is C. G. Shand. I am connected with the California Oil Well Cementing Company; I am president of that company. I reside at 5867 Denver Avenue, Los Angeles. I have been connected with the California Oil Well Cementing Company since January, 1924. The business of that company is cementing oil wells. I am familiar with the method which is used by that company for cementing oil wells.

Q Please describe that method.

MR. L. S. LYON: We object to that on the ground it is incompetent, irrelevant, and immaterial in this case

(Testimony of C. G. Shand)

what somebody else is using, some other method that some other company is using. It has no bearing on the issues in (496) this case.

(498) THE COURT: The objection is sustained.

Q BY MR. WESTALL: Where does your company operate?

MR. L. S. LYON: The same objection.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A In Southern California, or in California.

Q BY MR. WESTALL: Does your company use plugs in cementing?

A No.

MR. L. S. LYON: The same objection.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

Q BY MR. WESTALL: What method of cementing does your company use?

A The displacement system.

MR. L. S. LYON: The same objection as made before.

THE COURT: The objection is sustained.

(500) Q BY MR. WESTALL: Can you say how many wells have been cemented by your company in California?

MR. L. S. LYON: The same objection.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A Not exactly. I couldn't tell just the exact number of wells.

Q BY MR. WESTALL: You can state approximately the number of wells, can you?

(Testimony of C. G. Shand)

A Yes; over 800.

MR. L. S. LYON: We object to the latter part as volunteered.

THE COURT: I will permit it to stand. You have given a minimum limit now; you say over 800. What is the maximum?

(501) MR. L. S. LYON: The same objection.

THE COURT: Overruled.

A. Not to exceed 900.

Q BY MR. WESTALL: During what length of time have you cemented 900 wells?

MR. L. S. LYON: The same objection.

THE COURT: Overruled.

A From January 14, 1924, to date.

Q BY MR. WESTALL: Can you state how many wells were cemented by your company during the month of March, 1927, in the State of California?

MR. L. S. LYON: That is objected to as immaterial.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

A 19.

Q BY MR. WESTALL: And in the month of April how many did you cement, in 1927, in California?

MR. L. S. LYON: The same objection.

THE COURT: Overruled.

A 19.

(502) MR. L. S. LYON: An exception.

A 19 each month.

I am familiar with the method that has been referred to as the plug method of cementing oil wells. I have seen

(Testimony of C. G. Shand)

several wells cemented with the plug system. I have seen five cemented that way.

Q Can you state whether or not the heads on those wells were removed, or pressure relieved, after the cementing of the wells?

MR. L. S. LYON: We object to that as immaterial. Our witnesses concede that in these deep wells here at the present time in Southern California, as an added precaution it is our practice to leave the head on the well, so if anything happens it is there.

(503) THE COURT: The objection is sustained.

MR. WESTALL: An exception.

Q BY MR. WESTALL: Have you ever attempted to do any cementing with the use of plugs?

MR. L. S. LYON: We object to that as immaterial.

MR. WESTALL: I should like, if the Court would permit, to make a brief statement of what we expect this witness to (504) prove, in order to be sure that my exceptions are saved for the Court of Appeals.

THE COURT: I think the record preserves your point sufficiently. If it does not, you may have the advantage of any amplification of the exception that you stated, and the record may show that Mr. Westall has fully and completely and comprehensively preserved an exception to any adverse ruling that has been made concerning his questions.

Q BY MR. WESTALL: With the method of cementing that you are employing, do you have any difficulty with the fluid in the well that you use mixing with the cement and therefore vitiating or spoiling the job?

MR. L. S. LYON: We object to that as irrelevant and immaterial as to any issue open in this case. And

(Testimony of C. G. Shand)

I would like for your Honor, in connection with that objection, if you will, to read the decision of which I hand you a memorandum.

(Recess until 2 o'clock p. m., at which time the witness Shand testifies further as follows:)

(507) A The wells that I mentioned as having been cemented by the California Oil Well Cementing Company were all cemented in the State of California.

Q And those wells were all cemented by the method in which no plugs or barriers whatever were used?

MR. L. S. LYON: We object to that, your Honor, under your ruling.

(508) THE COURT: Overruled.

MR. L. S. LYON: Exception.

Q BY MR. WESTALL: In the use of that method have you had any difficulty with the fluid used in the well becoming mixed with the cement?

MR. L. S. LYON: We object to that and offer, if the Court will consider them, to present authorities in support of our objection on the ground it is irrelevant and immaterial. The defendant is estopped from attacking the utility of a feature that is employed.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

A None whatever.

ON

CROSS EXAMINATION

Mr. Shand testifies:

I have had considerable litigation with the Perkins Oil Well Cementing Company, the plaintiff in this case, over a patent that we were using, that the patent was granted

(Testimony of C. G. Shand)

seven years prior to the patent in suit. (509) It was the Halliburton patent I had reference to. The DuRell patent was granted seven years prior to the Halliburton patent. I was sued on the Halliburton cement mixer patents in this court, by Halliburton and by the Perkins Oil Well Cementing Company. We were enjoined here in this court by Judge Bledsoe.

(510) We are under injunction in this court in a matter involving the method of mixing cement in our cementing of oil wells, and which injunction has been procured by the plaintiff in this case,

(511) that we employed in our cementing operations.

These 19 wells that we cemented in March, I am not personally familiar with where all of those wells were and the conditions under which the cementing occurred that took place. I could not say how many of them were surface jobs without looking at the job reports which I have here. Some of them were surface jobs. They would run about fifty-fifty, half surface and half water strings. The record runs fifty-fifty. In fact, I am sure there is more water strings than there is surface strings.

Q Now, with surface strings, they are for shallow work, and to support the surface pipe, and not to shut out water; that is correct, isn't it, the purpose of the cementing?

A Yes. In some cases they are for the purpose of shutting out water. (512) There is no test made by the Mining Bureau where we are cementing surface strings. If there was a water strata in there, it would give you considerable trouble if the water was not shut off. That is one of the purposes of cementing surface

(Testimony of Frank D. Murray)

casings. Most surface strings are made out of stove-pipe casings, which will not shut out water under any great amount of pressure. Whether the mere fact of cementing at the bottom of a surface string would shut the water out of the hole depends on the amount of water you run into. It depends on the water strata. We do not use the surface string in a well as a water string, to shut out water from the well; that is not the purpose of the surface pipe.

ON

REDIRECT EXAMINATION

Mr. Shand testifies:

(513) Q Do you use a tight head on top of your casing in your work?

MR. L. S. LYON: I object to that as not rebuttal, not redirect examination, if the Court please—going into the details of his method.

THE COURT: I will permit it. Overruled.

MR. L. S. LYON: Exception.

A Yes, we use a tight head.

Q BY MR. WESTALL: And why is that used?

MR. L. S. LYON: Same objection.

THE COURT: Objection sustained.

MR. WESTALL: Note an exception.

(514) TESTIMONY OF FRANK D. MURRAY,
FOR DEFENDANTS.

FRANK D. MURRAY,

called on behalf of the defendants, being duly sworn,
testifies:

(Testimony of Frank D. Murray)

My name is Frank D. Murray. I reside at Long Beach. My business is oil well cementing. I am connected with the Rotary Oil Well Cementing Company.

Q You cement wells by the no-plug process of cementing, do you not?

MR. L. S. LYON: Same objection, under your Honor's ruling.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

A I do.

Q BY MR. WESTALL: Please state how many wells in the State of California you have cemented by that process, if you know.

MR. L. S. LYON: That is objected to on the ground that it (515) does not relate to water strings. He might cement wells for other purposes, re-cementing and all the rest of it that has been brought out under the evidence; it is irrelevant and immaterial unless it is confined to the function of the process that the patent relates to; that is, shutting out water from wells by cementing in back to the lower end of the casing.

THE COURT: Objection overruled.

MR. L. S. LYON: Exception. We also make the same objection we did to the former testimony, on the ground it is irrelevant and immaterial.

A I cannot state definitely the number of wells cemented.

Q BY MR. WESTALL: Can you give us any approximation?

(516) MR. L. S. LYON: I object to that as not the best evidence.

(Testimony of Frank D. Murray)

THE COURT: Yes; it does not give the Court the light it is entitled to, unless it is a definite approximation containing the maximum and minimum, to which the witness can swear it is correct. If he can do that, of course, I will hear it.

Q BY MR. WESTALL: Can you give the kind of approximation the Court has just indicated, of the number of wells?

A Not very definite.

MR. L. S. LYON: I object to that as calling for the conclusion of the witness as to whether he can or not.

THE COURT: Objection overruled.

Q BY MR. WESTALL: Can you state how many wells have been cemented by your company during the month of March, 1927?

MR. L. S. LYON: Same objection.

A I object to it.

THE COURT: He does not want to reveal his trade secrets, and I do not think he should be required to. That is what I understand is your position, isn't it, Mr. Murray?

THE WITNESS: It is.

(518) Q BY MR. WESTALL: Mr. Murray, can you, without giving away or divulging any secret that you think your company should keep, can you give us any approximation of the amount of cementing that you have done by the no-plug method of cementing?

MR. L. S. LYON: We object to that on each of the grounds stated, and on the ground that he was foreclosed from inquiring into it without of necessity divulging whatever the facts may be in regard to this witness's operation.

(Testimony of Frank D. Murray)

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A I cannot say definitely just how much work we have done, and I would not care to, unless I am forced to say.

Q BY MR. WESTALL: Would you give some kind of an average of wells per month that you have cemented?

MR. L. S. LYON: We object to that on the ground it is not competent evidence, irrelevant, and immaterial.

THE COURT: I do not know what is meant by "average." As I stated before, if you can elicit under oath the maximum and minimum work done, he would be required to answer. Unless he can, it does not throw any light, and we are taking up a lot of time, and this is your witness, Mr. Westall.

(519) Mr. WESTALL: Note an exception.

Q I will ask you, Mr. Murray, you use, do you not, the method of cementing wells without any plugs or barriers?

MR. L. S. LYON: Same objection; already asked and answered.

THE COURT: I thought he answered that. Overruled. He may answer it again.

MR. L. S. LYON: Exception.

A We use no plugs or barriers.

(Testimony of Felix Mallon)

TESTIMONY OF FELIX MALLON, FOR DEFENDANTS.

FELIX MALLON,

called on behalf of Defendants, duly sworn, testifies:

My name is Felix Mallon. I live at 2709 Allen Avenue, Long Beach. My business is oil well cement and pump supplies. I have been connected with the oil industry a little over fifteen years; about fifteen years. During that time I have had experience in oil well cementing. From the time I first started, we started out mixing cement at first in pans. The first place was in Santa Maria, and we (521) cemented there, mixed up the cement, pumped it down the hole; and I would not swear whether it was the Scott method at that time, or whether it was the Perkins. Now, I didn't take interest enough in it at the time for to know which company was doing the work. That was along the latter part of 1911, or the first part of 1912, I couldn't say which now.

Then we cemented several wells there on that same method, but I didn't pay no attention to the company that was doing the work. Then I moved from there to Taft, and I had quite a lot of experience there with cementing oil wells. Whenever we would go down and cement a string of pipe, and we would use, I believe it was the Perkins method on the first one I worked on in Taft, and that was, I believe, the latter part of 1913—or 1912. That was about a mile outside of Taft, and I couldn't say what the name of that lease was now. It was a small lease, about three wells on it. Then I went to work for the St. Helens along in I think it was the first

(Testimony of Felix Mallon)

part of 1913, and I worked at St. Helens there for about a little over six years. We used the Scott method in that. We had a mixer that mixed the cement, and we pumped that down the hole and then filled up with mud, and measured it in.

(522) When I talk of the Scott method I am not talking of the tubing method of cementing; I am talking about cementing it through the casing without any tubing at all. The first one I cemented through the casing was in, I believe it was in—the first well we cemented on St. Helens there in Taft, but I can't recall, of course. I never paid so much attention to the others ahead of that, but I was looking after it there, and I can't remember just what we were doing there; so we measured our mud in and always left about 25 feet in the bottom of the hole. From 1913 up to 1919 I think we cemented about 28 wells in that time. The method we used on those wells was either the Scott method or the Wagle method, I couldn't say which of the two. (523) All of these 28 wells were cemented by this no-plug process; no plugs or barrers at all were used. A tight head was used on those wells; we had to use the tight head for to hold our (524) pressure until the cement set.

Q Did you set or attempt to set the casing on the bottom?

MR. L. S. LYON: We object to that as having no part in his qualifications that I can see.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

(526) THE WITNESS: I just saw one job by the method used by the defendant Owen at the time he had

(Testimony of Felix Mallon)

got that plug out. I heard about pulling the head off, and I wanted to see how it was working, because I always figured that it would save the company a lot of time by pulling this head off and giving a chance to break the pipe down, save them several days labor, so I went over to see his head, to see if he could really do it. So I know this well, but he put this first plug in I saw, and he cemented that, as I understand, about 10 feet off bottom. When they got their cement there, the boys went up and opened the stops and pulled the head right off. Outside of that I couldn't tell anything about it, because it was the only time I was around to see that plug work. I couldn't say what prevented the cement coming back into the casing when the head was removed, outside of it was the plug. I know the pipe was setting off bottom, because they got the oil sand below.

ON

CROSS EXAMINATION

Mr. Mallon testifies:

This job that I saw the defendant's plug used on I think was along about the end of June or the first part of July, 1923; and the location of the well was in the corner of Willow Street and California, in Long Beach. I got there for to see them put the plug in. They were mixing cement when I got there. The pipe was absolutely in the well.

Q How do you know whether the pipe was on bottom or not after the pump was stopped?

A Well, you let your pipe down. Where you are cementing you let your pipe down for bottom and feel where bottom is. I didn't do that on that well; I was

(Testimony of Walter Hughes)

not interested in the well. All I wanted to see was the plug. (528) I don't think at that time there was a float valve used in any well.

Q Do you know whether there were any on that well or not? You did not see the pipe go down, so you don't know?

A I didn't see the pipe go down in the hole.

As to how long after pumping is stopped it takes the cement to set is according to the way you put the cement in. If the cement is thick enough it may set in a couple of hours time, but the cement won't run back. I couldn't say how thick the cement was they pumped down that well. I couldn't say whether or not it had any quick-setting chemical mixed with it. All I know is that it was on this job that—

MR. L. S. LYON: That is all.

TESTIMONY OF WALTER HUGHES, FOR DEFENDANTS.

WALTER HUGHES,

called on behalf of Defendants, duly sworn, testifies:

My name is Walter Hughes. I live at 1338 Walnut Avenue, Long Beach. My business is drilling oil wells. I think it was about 1912 that I went to work for the Standard Oil Company as a roughneck on the rotary, and I worked for them five years. During that time I finished up the wells and cemented. Since then I worked two years for the Petroleum Midway, one year for the Richfield-Yorba, and about two years, or something like that, for Wigle & McBride; something like three years

(Testimony of Walter Hughes)

for the Bush-Voorhis Oil Company, and over two years for the Rainbow Petroleum; I have forgot the date.

(530) For the Standard Oil Company I started out as a roughneck, and after about four years and a half roughnecking they gave me a job as driller, extra. I drilled on three different holes, I believe, for them. Then I quit and got a steady job as a driller for the Petroleum-Midway. I also worked a short time for the St. Helens before I took charge of the well at Richfield. I was superintendent there for approximately a year. Then I went to work for Billy Wigle, and I was tool pusher for him. From Billy Wigle I went to work for Bush-Voorhis as drilling superintendent, and from Bush-Voorhis I was drilling superintendent also for the Rainbow Petroleum.

Practically every well that I have had charge of I have been on the job when they were cementing. That was approximately thirty wells. (531) When I was working for Billy Wigle he had his own cementing outfit. Bush-Voorhis, Mr. Owen cemented some of them and Perkins cemented some of them. The same way with the Rainbow Petroleum.

Q How did Billy Wigle cement the wells?

MR. L. S. LYON: We object to that, taking up the time of the court. It has been before the Court, it has been adjudicated. We will admit the witness knows how Wigle cemented wells, if it is going to save time. It is not an issue in this case.

MR. WESTALL: The purpose of the question is not only to qualify the witness, but also to show that this no-plug process has been in use at the same time and in competition with Perkins, and the relative uses.

(Testimony of Walter Hughes)

(532) THE COURT: Overruled.

MR. L. S. LYON: Exception.

A Well, as it has been repeated several times, you go through the same process of mixing the cement and pumping it down the casing. Billy Wigle used what he called the packer. (533) It would indicate when the plug got to the bottom, providing it was caught in the casing.

Besides this plug method, I have had experience with cementing without a plug.

Q BY MR. WESTALL: What experience have you had cementing without plugs, just generally.

MR. L. S. LYON: We object to that subject, unless it is limited to his qualifications, on the ground that—

THE COURT: Overruled. I think it does call for a conclusion.

A Why, recementing jobs, cementing through tubing, measuring the fluid in after the cement instead of having the plug stop, stop plug. I believe I have had experience in cementing through casings without plugs. (534) I can't recall just the exact well or location or time, but I was at a well when it was cemented without a plug; but I have been on jobs, I know some two or three jobs, where they did not use no plug at all, just measured the cement in, and measured the displacing fluid in.

Q Were those jobs successfully cemented?

MR. L. S. LYON: We object to that as opening up a wide subject. It is not sufficiently material or relevant to take up the time of the Court. As we say, we have no objection, if the no-plug process is satisfactory, for these defendants to use it.

(Testimony of Walter Hughes)

THE COURT: Overruled.

MR. L. S. LYON: Exception.

A Well, I can't recall the time they were cemented, enough to say whether they were successful or not.

I have had experience with the so-called Perkins method in which plugs are used. (535) I have also had experience with Mr. Owen's method of using a special plug. Mr. Owen's special Inskip plug worked very satisfactory, never had no fault to find with it.

MR. L. S. LYON: I move to strike the last part out as not responsive to the question and voluntary.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

THE WITNESS: I observed the cementing operation and know just how it was done. The cement was mixed and put in the casing, and one of Mr. Owen's plugs put on top of it and pumped down; and to show that his plug would let the fluid down and would not flow back, why, the stopcock was opened on (536) top. It did not flow back. It looked all right. I asked him to leave the head on, anyway, thinking that something might go wrong, and it would start back before the cement would set. I believe the casing was set on the bottom in that case, and notwithstanding the setting on the bottom we wanted the tight head kept on.

Q Please state whether or not there was cement on top of that plug, as you remember it.

MR. L. S. LYON: Objected to as leading and suggestive. He has already described the method.

THE COURT: Overruled.

MR. L. S. LYON: Exception.

(Testimony of Walter Hughes)

A Yes, sir, there was some cement put in on top. My idea of the purpose of that was that if any fluid passed the plug at all it would be cement rather than mud; it would not (537) interfere with any cement below the plug. Directly on top of the plug in this case there was cement, and then on top of that was fluid—rotary mud.

Q BY MR. WESTALL: In your experience have you ever seen a job of cementing pumping through casing where water was used for securing circulation or for forcing the cement in position outside of the casing?

A To the best of my knowledge, that is the way Mr. Perkins used to do it, when he first went to work in the oil fields; pumped water in on top.

Q Do you know why they ceased that use of water?

A Well, you can only displace so much cement with water. Water is lighter than cement. (538) If you have got too much cement and put light water behind it, it accumulates too much pressure; your pumps would not be able to handle it, and if they would the casing would not stand it.

ON

CROSS EXAMINATION

Mr. Hughes testifies:

In my experience in cementing to land a water string, where cement had been introduced through the casing, 98 per cent have been jobs where a plug was used, I should judge.

(539) Q And don't you believe that the plug method is sufficiently more valuable than the no-plug method so that when the Perkins patent runs out everybody will use the plug method instead of the no-plug method?

(Testimony of R. H. Bess)

A Yes, sir. (540) Mr. Perkins is doing my cementing now by the plug method.

ON

REDIRECT EXAMINATION

Mr. Hughes testifies:

I only used one plug, just as an indicator.

Q Is it used for any purpose of separating the pressure fluid from the cement? Is there any advantage in the separation that you know of?

A Well, I can't hardly explain the question, because I have never seen the cement after it went down the well. I couldn't say. I don't hardly see how the plug could work as an indicator if it did not separate the cement below it from the fluid above it.

—————

(542) TESTIMONY OF R. H. BESS, FOR DEFENDANTS.

R. H. BESS,

called on behalf of the Defendants, duly sworn, testifies:

My name is R. H. Bess. I am in the oil business, and have been in it over forty years; about forty-seven years. My cementing experience in oil wells has been altogether since I came to California since about 1913. I had charge of drilling operations on a well that was drilled—a wild-cat well that was drilled in the San Joaquin Valley, above Bakersfield, was my first cementing experience. Then I did not see any more cementing done for a couple of years. I was with the Santa Fe Oil Company at Fellows. We worked, I think, cemented about six or eight wells while I was with them. I was with the (543) crew that

(Testimony of R. H. Bess)

did the cementing. Then when Signal Hill opened up in 1921 I was superintendent for the Bush-Voorhis Oil Company, general superintendent, and we drilled a number of wells here. I think I was with them about three years, just about three years, and then I went with the Rainbow Petroleum Company, of which I am now president. We drilled, I think, about 11 wells in the field, 11 or 12 wells in the Signal Hill field, and I am also manager for a couple of—two or three small companies down there that have two wells. We have had a little bit of every kind of cementing. We have used the Perkins system more than any other. We have had some tubing jobs, cementing through tubing, and on one job I remember we cemented through casing, measuring the fluid in, without any plugs. That was on Rainbow 1, I think it was about September, 1925. In that particular case (544) we were making a pressure test on a squeeze job, as we call it, a leaky string of pipe, a second cementing job. We had cemented the well at one time, but the cement failed to hold, it was not perfectly tight, it was almost tight, but it had a small leak in under the shoe or under the casing shoe, and we put in some cement in the bottom of the hole, and then put pressure on it to try to force it off into those crevices where the water came through, and we were successful in the job. That is what we call a squeeze job.

I can't say how many wells were cemented for us by the Perkins method, without reference to the books of the company. The tight head was not removed from the wells when they were cemented by the Perkins method. We always kept the tight head on as a safeguard to

(Testimony of R. H. Bess)

keep the fluid and the cement from settling back into the casing.

(545) I have had experience with the method of Mr. Owen in which he used a special packer or plug, which would go down through the casing but would not come up. I can't say how many wells exactly were cemented by that method. I know he cemented some of the wells for the Bush-Voorhis Oil Company while I was with the company, and I would say three or four jobs, approximately. I did not personally observe those jobs. I was on one of the jobs when it was cemented, that I remember.

Q How did you happen to employ Owen to do that cementing instead of Perkins?

A Well, I liked his plug, the idea of his plug, and I liked the idea of taking the head off as soon as the cement was pumped into the well, so that we could get to work on setting the pipe on the clamps at the top of the hole and drill the hole out, and so on. That was done in those cases that Mr. Owen did. (546) It was done on one job. I remember being there when the pressure was taken off and the head was removed. The advantage of taking the head off was we could go right to work on landing the pipe on the clamps at the top of the hole and proceed with breaking down the drill pipe and putting up new pipe without being delayed by waiting on the cement to set. The amount of saving in money by that would depend largely on what you had for your crews to do around the rig. In the course of regular drilling, it just amounted to what you would have to hold your crews up until you were satisfied that the cement was set, and not take off the head, which would probably be 24

(Testimony of R. H. Bess)

hours or 36 hours time, I would say, before you could feel safe in taking the head off. That would be when we were using quick-setting compound.

(548) ON

CROSS EXAMINATION

Mr. Bess testifies:

We left our wells standing cemented about five days before drilling out. In this well where we took the head off, we put the crew to work letting down on the clamps and breaking up the drill pipe right away. It was just a question of getting a measure on the last joint of casing—it was unscrewed out—and cutting a nipple for that.

Q How much work was there for the crew that they could do because of the taking of the head off that they could not do if the head was left on?

A They could work for two days out of the five, landing the pipe on the clamps at the top and breaking down the drill pipe that was standing in the rig (549) and putting up new drill pipe. There is fully two days work for a crew on a well after the well is cemented and before you drill the well out. If you do that two days work in the first five days that the well is standing, then after the work is done there is something like two or three days that you wouldn't have very much to do. We have always used the crews right on the same well straight through. We never laid them off to speak of. When a man or two wanted off, we would let them off; but ordinarily we have kept them busy at something around the rig there. There is some time there they wouldn't be very busy.

(550) I only recall one job that Owen did with his special plug that I recall. I couldn't say whether the

(Testimony of R. H. Bess)

casing was landed on bottom in that case or not. Usually our casing was landed on bottom. We always landed it on bottom if it was possible. It wouldn't be possible to tell at the top of the well whether the plug was holding any excess pressure back or whether the landing of the casing was doing so, if the casing was landed, because they would both act in the same way. I don't think there were any float plugs or float valves used on that well. Where float plugs are used on a well, the cement and the float can't back up in the well anyhow, whether you use these dogs like Owen does or not.

I never had any experience in oil well cementing until I came to California. We made formation shutoffs altogether in the East. From 1880 up to 1913, when I came to California, (551) I worked in West Virginia fields first, in the old volcano field in West Virginia, from the time I was a small boy, for about five years; then I was in the Ohio fields, in the Maxberg field in Ohio, in the Corning field, and on both sides of the Ohio River from Pittsburgh south almost to the Kentucky line; and I also worked in the Indiana fields, and later in the Wyoming fields, in the Lost Soldier and Big Muddy fields in Wyoming, and then from there to California. In those fields there was no cementing on anything that I had charge of. I was in charge of operations for the Midwest at Lost Soldier, and it was a shallow proposition, and was all formation shutoffs.

ON

REDIRECT EXAMINATION

Mr. Bess testifies:

When the casing is set on bottom, I would keep the tight head on with the Perkins process for safety's sake.

(Testimony of R. H. Bess)

(552) I never tried to take it off. Theoretically there would be almost a thousand pounds back pressure on the bottom against the plug, I should figure. It won't be that much, because the friction in the mud column above will offset it until the gage will usually show around 400 pounds when it is standing cemented. I would be just a little afraid to take that 400 pounds off, for fear it might break through under the shoe of the pipe. It might not, but it is just another precaution. I don't think I ever knew of a head being taken off of a Perkins job, or pressure released.

I have seen them use water to pump the cement into place outside of the casing instead of mud; that was at Fellows in the shallow fields. They do not use that method now in deep fields, because you can't do it with safety. There is too (553) much back pressure on these long water strings. There is too much back pressure from the cement and from the difference in weight of the cement and the water. If you attempted to do it in a deep well you might burst your casing. You would have to use high pressure pumps, and we don't have them around the rigs, and the other pumps won't put up pressure enough to put the cement behind the pipe by the use of water alone. If you used water at the present time in these deep wells you couldn't get your cement outside of the casing with the pumps we use on the wells, not with the mud pumps we use on the wells.

(Testimony of Roesoe W. Stephens)

(554) TESTIMONY OF ROSCOE W. STEPHENS, FOR DEFENDANTS.

ROESOE W. STEPHENS,

called on behalf of Defendants, duly sworn, testifies:

(It was stipulated that the deposition of Mr. Stephens taken in the Wigle case be copied into the record in place of having the witness give oral testimony, and the following is the testimony given in said deposition.)

(555) My name is R. W. Stephens. I reside in Eagle Rock, California. I am in the oil business. I am field superintendent for the St. Helens Petroleum Company.

I have had experience in cementing oil wells. I cemented my first well in the early part of January, 1907, by the method of pumping the cement in after obtaining circulation. That was done by installing a packer around the tubing and landing the packer near the bottom of the casing, raising the casing a short distance from the bottom of the hole and pumping the cement back of the casing. The purpose of the packer at the bottom of the well was to force the cement out around the casing. That cementing was done for the Union Oil Company; at that time I was superintendent of their Lompoc properties. This job (556) was on Hill No. 4 in the Lompoc field for the Union Oil Company.

After that first job I cemented wells in the Lompoc field, Santa Maria, Maricopa, Taft, Fullerton, Montebello. On those wells I pumped the cement through the casing after obtaining circulation and raising the casing off the bottom—I should reverse that and say I raised

(Testimony of Roesoe W. Stephens)

the casing off the bottom, obtained circulation, and then followed with cement, and then with sufficient fluid to carry it out of the inside of the casing and out back of the casing.

I have used both the tubing and pumping cement directly into the casing. I think it was in the latter part of 1911 (557) that I dispensed with the tubing and pumped the water and cement directly into the casing. That method was used by me in the Maricopa field for the Union Oil Company. I will correct that statement. I think I said the latter part of 1911, but as I fix it now it would be the early part of 1911. (558) I am not sure that the Union Oil Company's records would show the methods used on the wells at that time.

Q Now, speaking of the method last referred to by you, namely, the method in which the tubing was dispensed with and the cement and water pumped directly into the casing, please describe fully the remaining steps of that method.

MR. L. S. LYON: That is objected to as irrelevant and immaterial, and certainly not prior art, but subsequent art.

A After pumping in the cement we followed it with sufficient fluid to carry it back of the casing and lowered the casing on the bottom of the hole. Having set it on the bottom is one reason that the cement is prevented from running back into the casing; and a tight head at the top, which we close, prevents the back circulation.

I am acquainted with Mr. Wilson B. Wigle. He worked in the Lompoc field when I was in charge of that district for the Union Oil Company. (559) To my

(Testimony of Roesoe W. Stephens)

knowledge he did cementing of oil wells. He used three different methods—perhaps I should correct that other answer, stating that he was in my employ with the Union Oil Company. He also was in my employ for several years with the St. Helens Petroleum Company. Mr. Wigle started cementing oil wells in the summer of 1907.

Q Please describe, if you know, the method used by Mr. Wigle in cementing oil wells at the time you have last mentioned.

MR. L. S. LYON: We object to the question and ask that the witness be asked to describe what he saw or what he, the witness (560) did, as far as the witness is competent to testify.

A I think he first employed the bottom packer on tubing, and soon after that he used the method of the top packer, or tight head at the top of the casing, with tubing near the bottom.

Q BY MR. WESTALL: When did he first use the last mentioned method?

MR. L. S. LYON: We object to that as not asking the witness for his recollection of what he saw. It may include something somebody told him. It is incompetent.

A I have the impression it was the latter part of 1907 or the early part of 1908. I cannot state positively that it was either the latter part of 1907 or the early part of 1908.

Q BY MR. WESTALL: How late or how early might it have been, according to your recollection?

MR. L. S. LYON: We object to the question as incompetent and irrelevant, and not calling for a statement of fact.

(Testimony of Roesoe W. Stephens)

A I would be unable to say, other than that it was, as I state, in the latter part of 1907 or the early part of 1908, as I remember. My recollection could probably be refreshed as to the date by (561) the Union Oil Company's records. That method was used in the Lompoc field, and I couldn't say what well.

In the method used by Mr. Wigle in the latter part of 1907 or the early part of 1908 he lifts the casing to be cemented a short distance from the bottom of the hole, installs the tubing inside the casing, connects it with a tight head on top, and lowers it near the bottom of the casing, the tight head acting as a packer to force the cement and circulation outside of the casing; then follows the cement with sufficient fluid to clean his tubing and carry the cement back of the pipe—back of the casing. The casing is lowered on bottom and the head at the top of the casing is also kept tight to prevent back circulation.

Q During the use of any of the methods which you have referred to, and particularly the last mentioned method which you have described, please state whether any barrier or packer was used to separate the water from the cement.

MR. LYON: We object to that as grossly leading, the witness (562) already having been asked to describe the method and the means employed, and having given the best of his recollection; and we call attention to the suggestive character of the last question and protest against counsel leading the witness in a vital matter.

A So far as I know he used no barrier.

I have not had any experience in the cementing of wells in which a packer or barrier was used to separate

(Testimony of Roesoe W. Stephens)

the water and cement and prevent the dilution of the cement by the water. I would be unable to say with how many cementing jobs I have been connected or that have come under my personal observation. Probably, oh, I would guess 200. In none of those jobs was any barrier or packer used between the cement and the water to prevent the dilution of the cement. In all of those jobs to my knowledge the water was pumped in on top of the cement without any attempt to separate them. I would be unable to say what proportion of those jobs were successful cementing jobs. (563) The percentage of success with us has been about equal with other methods of cementing. It is my experience that a successful cementing job can be effected without the use of any barriers to separate the cement and the water. We are doing it all the time. Unless barriers or packers are used to separate the cement and the water, the water will not mix with the cement and dilute it to the extent to injure the job.

I am familiar with the method that patent No. 1,057,789, granted to Wilson B. Wigle April 1, 1913, represents. I have used that method in some of my cementing operations.

Q Can you state in a general way how many wells have been cemented—limiting them to those under your observation—by the method described in said Wigle patent?

MR. L. S. LYON: The objection is made to the question and to the preceding question and answer, on the ground that it calls for a conclusion of the witness.

A I would be unable to state. It has been used in very many wells, but I don't know how many.

(Testimony of Roesoe W. Stephens)

(564) ON

CROSS EXAMINATION

Mr. Stephens testifies:

As to whether the method illustrated in the Wigle patent is just as good as any other method of cementing that I know of is a matter of judgment. I rather prefer the open casing to installing the tubing, as it saves time in putting in the tubing. However, I think one job is just as often successful as the other. I have seen the Perkins method of cementing a well operated. I would not be able to say what percentage of wells at the present time in California are being cemented with the Perkins method as compared with the method of the Wigle patent. I don't know whether it is five to one or ten to one. I am unable to say whether there are as many wells being cemented at the present time in California by the Wigle method as by the Perkins method or not. (565) I asked Mr. Perkins once if he was planning on making a stock company. I told him I might be interested in the process. I don't remember that he gave any reply on it at that time.

In some cases with the use of the method described in the Wigle patent No. 1,057,789 there may have been a small amount of cement left in the casing to be drilled out. (566) It is our practice to leave some cement in the casing. We usually figure on leaving from 10 to 20 feet. I would be unable to say the amount. There is usually a small amount of cement in the casing. I have known of jobs that had all of the cement forced up around the casing before the cement is allowed to set and none of it permitted to set in the casing. I would be able

(Testimony of Roesoe W. Stephens)

to give you a specific example of such a job. That is not accidental; it is close figuring. We intend that 10 to 20 feet of cement should be left in the casing to set and afterwards be drilled out so that we may be sure there is cement around (567) the shoe, and a small amount in the casing does no harm. I don't know as any amount would do harm if you had plenty of cement back of your pipe.

I have left the cement in the casing on jobs by the Wigle process. I don't think I ever left any in the tubing. I have had some in the casing that I had to wash out. I don't think by this method I ever had any tubing cemented up so that I had to pull it out and discard the tubing.

I have had that experience with the method where we used the bottom packer; we had that difficulty. I don't think I have had that experience with the method in which the head was closed at the top of the well and the bottom packer eliminated. I don't know of anybody to my knowledge that has.

(568) I did not testify in the case before Judge Bledsoe brought by Scott, Wigle and McBride against Huber and Wilson.

Q When you refer to the Wigle patented method do you understand that method includes a method of cementing in which cement is left in the casing to be drilled out?

A No, I don't understand it to be that.

Referring to this statement in the Wigle patent, beginning at line 44 of page 1 of the specification: "In case such cementing of the packer does not occur and the operation is successfully performed to the point at

(Testimony of Roesoe W. Stephens)

which the operator assumes that the cement has been sufficiently forced out of the casing into the annular space it sometimes occurs that the operation is stopped too soon, thus leaving an amount inside the casing, and also inside the tubing, so that when the tubing and the packer are withdrawn a quantity of cement is left in the bottom of the well where it becomes set and is an obstacle to the flow of the gas or oil," I understand the statement from the reading of it. (569) The statement that it was a disadvantage and an objection to the old bottom packer tubing method of cementing to leave some cement in the casing to be set is wrong, in my judgment.

ON

REDIRECT EXAMINATION

Mr. Stephens testifies:

In his method Mr. Perkins inserts what I always undersood was termed a packer in the casing, pumps his cement on top of that, and then follows it up with another packer for the purpose of separating the water or mud fluid from the cement, and then lowers his casing on the bottom, I believe, and completes the job, or shuts off the tight head at the top, either, in order to prevent back flow. From my experience and observation of the work of both methods I think there is no advantage in using those packers to separate the water from the cement.

(Testimony of A. R. Johnson)

TESTIMONY OF A. R. JOHNSON, FOR DEFENDANTS.

A. R. JOHNSON,

called on behalf of Defendants, duly sworn, testifies:

My name is A. R. Johnson. My business is drilling wells for oil and producing of wells. I have been connected with the oil industry since 1908, all the way from lease work to tool dressing, drilling, superintendent, and managing work. I would say I have seen at least 400 wells cemented, or strings of pipe cemented, from about 1910 or 1911 on.

The methods I have seen of cementing oil wells have been the dump system, that is, the dump bailer system, pumping it down through tubing through the casing, and with plugs and without plugs. I first saw a job of pumping down through casing without plugs (572) in 1915 or 1916, and I have observed a great many similar jobs since then. I have seen those wells cemented without plugs at the Huntington Beach field and the Long Beach field and Midway field.

MR. L. S. LYON: May it be understood, if the Court please, that I reserve an objection to any of this no-plug testimony, without repeating it, and an exception, except so far as to establish qualifications of the witness? I have no objection to their experience for that limited purpose. Otherwise may my objection and exception stand, without repeating it?

THE COURT: It may be so understood.

THE WITNESS: I would say I have seen 100 jobs cemented with the no-plug system. (573) I saw a job of that kind about ten days ago.

(Testimony of A. R. Johnson)

Q BY MR. WESTALL: You mentioned the use of plugs in cementing. Please explain why plugs are used, or what advantage, if any, they are.

MR. L. S. LYON: The same objection as we have heretofore made.

THE COURT: Overruled.

(574) MR. L. S. LYON: An exception.

THE WITNESS: Today I would rather use the no-plug system.

Q BY MR. WESTALL: Please explain why.

A Well, we have what we call a float valve that helps us float our casing in and helps to take the tension off of the weight of it, and after you have gotten your cement pumped out, your float valve will hold your cement back behind your pipe. Another thing, with the float valve, if you should happen to part your pipe going in the hole, your float valve will close and your pipe would float to bottom. Another thing in favor of the no-plug system is that you do not have to take off your tight head to put in your plugs on top of your cement. Most always, if you put in any amount of cement, you will find your fluid down at (575) least from 100 to 200 or 300 feet in the casing. Taking off the tight head lets air in, which I think should be out, that is, should not occur, or which I think is a detriment, I mean to say.

Q When you do not use plugs, are you troubled with the fluid in the well on either side of the cement mixing with the cement so as to jeopardize the job in any way?

MR. L. S. LYON: The same objection, if the Court please.

THE COURT: The same ruling.

(Testimony of A. R. Johnson)

MR. L. S. LYON: An exception.

THE WITNESS: There is no way of telling. I cannot answer as to whether or not we have trouble with jobs in which plugs are not used by the cement becoming diluted in any way by the fluid in the well, because you don't see any cement after you have pumped it down. I can cement jobs successfully without plugs.

Q BY MR. WESTALL: And when the cement is pumped down outside of the casing, it cements off the water whether you use plugs or not, doesn't it?

MR. L. S. LYON: We object to that as leading and suggestive, if the Court please. This whole thing is a matter of percentage of jobs that you get.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A It is not pumped down the outside the casing.

Q BY MR. WESTALL: What advantage, if any, is there in using plugs? Is there any advantage in using a plug or plugs in cementing?

MR. L. S. LYON: That objection of ours, and exception, stands to all of this.

A Not today.

I have used Mr. Owen's Inskeep plug in cementing. (577) At the time that I first saw that plug it looked very good to me, it being a time before the float valve, or before I had seen one, at least. The part that I liked about it was this: that while you were pumping your cement down and when you got your cement down and got part of it behind your pipe, or almost all of it, if you should happen to part your pipe, these little dogs would take hold of the sides of the pipe and stop your

(Testimony of A. R. Johnson)

plug, and therefore prevent your cement from coming back in your casing.

Q Could you, after the plug was in place at the bottom of the casing, take the head off?

MR. L. S. LYON: We object to that as leading and suggestive.

THE COURT: Overruled.

MR. L. S. LYON: An exception.

A You could take it off. I have released the pressure on them and the plug would hold the cement in place. It may not take hold the very minute you release it. These dogs might on these walls of the casing slip to the first coupling and there take hold, which in one instance I had an experience with.

The Texas Holding Company Well #3 at Huntington Beach was cemented by the plug system, that is, (578) the Owen or the Inskeep system. I was not present at the cementing of that well; I was a little late. I arrived after they had cemented it. I don't think the head was taken off immediately after the cementing of that well. The pressure, I think, might have been released. I wouldn't say for sure whether it was or not. It has been quite a while ago.

(579) ON

CROSS EXAMINATION

Mr. Johnson testifies:

I know after I arrived at that well Mr. Richmond and Mr. Bell were there. I remember talking to them while they were standing there at the well. I did not state that at that time the head had been removed from the well, or that at that time the valves had been opened on the

(Testimony of Dave Johnson)

head. In using this Inskeep plug I kept the head on the well for a while on the water strings. Where I was cementing to shut off pressure, I kept the head on until the cement had partially set.

(580) The Perkins plugs can be used with the float valves that I said I liked to use, and get all of the advantages of the float valves.

Q Now, by using the top plug of the Perkins method, if there is a split in the casing you can locate that split, can you not?

A Both ways. By use of the plug you have an indication as to when the cement is in position, independent of any measuring of the fluid. We employed the plug method of cementing for a considerable period in the Federal Drilling Company. (581) The Perkins people sued the Federal Drilling Company, which I was managing, for infringement of the Halliburton mixer. The case did not come to trial, but the suit was brought and then we allowed the decree to go and stopped using the mixer.

(582) TESTIMONY OF DAVE JOHNSON, FOR DEFENDANTS.

DAVE JOHNSON,

called on behalf of Defendants, duly sworn, testifies:

My name is Dave Johnson. I am an oil man, I guess, and have been in the oil business since 1910. I have observed the cementing of oil wells. I have witnessed the Perkins system, the Owen system and the no-plug system. While I was drilling foreman for the Federal

(Testimony of Dave Johnson)

Drilling Company at Huntington Beach, we used the Owen system on two different holes or two different wells, and after pumping (583) the cement into the hole and landing the pipe, on the Woolner well especially, we opened the bleeders, and we did not take the plug out—or I mean the head. The Texas Holding Well #3 was cemented by the Owen system.

In the Owen system you get the pipe and the casing at the bottom, and get circulation; then you put the plug in, or rather we pumped the cement in, and then the plug on top of the cement, and a little cement on top of the plug, and pumped it to bottom. After pumping it to bottom the derrick man in the use of the Perkins system closed the stop on the head, and we told him to open them. The derrick man was Mr. Dutzi. After closing them we told him to open them, and he opened the valves, or the stops, and then we opened the bleeder on the pump. We left it open a little while, and were requested by Mr. Swartz, superintendent of the Texas Holding Company, to close it. I left there right after that, right after the cement job was cemented and the valve was closed. Someone called me up a little later on at my home in (584) Huntington Beach and asked if they could remove the head, and I told them that it would be all right with me, but they would have to see Mr. Swartz of the Texas Holding Company. Apparently they did, because the head was gone when I got back out there.

Q What, if any, advantage is there in using the Owen method with this Inskeep plug?

A Well, after your cement reaches bottom, or is nearly to bottom, if you should happen to blow up your

(Testimony of Dave Johnson)

hose, your circulating hose, or your head, or some mechanical condition come up, why, it would stop the cement from coming up back into your pipe so you could make repairs. That is a decided advantage, I should think. The fact that the head can be taken off after the job is of value, from my experience. You can take your head off and go ahead and land your casing. You can dig your cellar first, as most of them do, land the pipe, break down your drill pipe, and then make up your string for drilling out, and that is about all.

I have had experience with the Perkins system where two plugs are used. The past year we have used his system I guess (585) six times, with the two plugs, that is, using two plugs, and a couple of times without the two; with just one. We never took the head off of any wells that were cemented by the Perkins system after the job was cemented. We never tried it. The first thing that is done after the plugs are together is to close your stops to hold the pressure in there in your casing. As to how long that pressure is held then depends on how long you want it to stay there, that is, who is superintendent. They have different opinions on that, and different ideas. Some let it set a day and some three days, and maybe three or four days. It all depends.

I have had very little experience with the no-plug method; not over three wells, I imagine, three or four wells. That was in 1918 in Montebello at the Petroleum Midway. We were cementing water strings. We never cemented our surface pipe there; we used the pipe without cementing. (586) About fifty per cent of those

(Testimony of Dave Johnson)

jobs were successful, that is, at that time, with the conditions in that country we didn't know exactly where the water was located. It was more of a wildcatting proposition than anything else. The Perkins system was also used in that vicinity, with plugs; it was used by the Standard Oil Company, I know, and two or three different companies, but not by the Petroleum Midway that I am aware of. I do not have any knowledge on the subject of how much success they had as compared with the no-plug system.

(587) ON

CROSS EXAMINATION

Mr. Johnson testifies:

At the time this Inskeep plug was used for us by Mr. Owen, Mr. Al Johnson, who was just here, was my superior in the Federal Drilling Company. He is my brother. Mr. Bell was introduced to me by Mr. Swartz, I think, while the cementing operation was going on. The head was left on at the request of Mr. Swartz, after the cement had reached its position and the pumping had been stopped on that well. I imagine he didn't have confidence enough in it to take the head off with the plug. There was nothing on that particular well that could have been done that night while the cement was setting that we could have done by taking the head off that we couldn't do because the head was left on. The stopcocks were opened on the head of the (588) bleeder on the pump because we wanted to try it and see whether there was any back pressure. Mr. Swartz requested that they be closed. I don't recall the name of the party who called me up that

(Testimony of Dave Johnson)

evening and asked me if they couldn't take the head off of the well and I referred them to Mr. Swartz. I have seen him here in the courtroom for two or three days; I can't recall his name. It was not one of the Holding Company or one of the Federal men. Neither of us cared about taking the head off that night; absolutely not. One of the defendant' Owen's men wanted (589) to take it off so he could use the head some place else on some other job. The head was gone when I went back to the well the next morning between 7 and 8. I don't know whether the head was still there at 6:20 in the morning when Mr. Bell says it was there; I didn't get there until between 7 and 8. Under ordinary conditions the cement should have had its initial set by 6:20 in the morning following the job. The operation of cementing was in the evening of the day before, around 6 or 7 o'clock. I think they used a chemical called Quick-set to cause the cement to set quickly in the well, but I am not certain. (590) I remember their chopping it up into the water. I remember when my brother arrived at the well. I don't remember of him talking to Mr. Bell.

Q While your brother was there, as a matter of fact, the head was on the well, the cementing company had disconnected its hoses and equipment, and was either loading in the truck or had gone, and the valves on the head were closed; is that correct?

A They were opened and closed. I don't remember whether they were closed while my brother was there or not. The casing was touching bottom immediately subsequent to the cement reaching position.

(Testimony of Dave Johnson)

Q Isn't it a fact that it is impossible to tell whether lack of any back pressure at the top of the casing is due to the functioning of this plug of Inskeep's or was due to the fact that the setting of the casing on bottom sealed the bottom end of the casing off from any fluid pressure? You can't tell that, can you?

A Well, that depends. You might break the guide on the bottom of your shoe joint, which would leave a channel (591) for the cement to come back; and also if you happened to have a little iron or something, which is very frequent in holes, which would break this shoe guide, which is made out of cast iron, it would allow the fluid to come up inside.

Q Yes; but you can't tell from the fact that it does not that it is due to the plug? It may be due to a good seat from the casing, isn't that true?

A Yes, that is possible.

As I said before, Swartz wanted to leave the circulating head on the head with the valves closed after the cementing job, as he didn't have confidence in the plug. He wanted to leave it on there to be certain that the cement would stay behind the casing.

Q These advantages that you have talked about for this plug—the fact that it won't allow any back pressure before the cement sets is no longer an advantage if you use float plugs, which your brother says it is desirable to use, is it? You can't get any back flow in the pipe anyhow, if you have float plugs, can you?

A Not if it is in perfect mechanical condition.

(Testimony of S. L. Pugh)

(Recess until May 12, 1927, at 10 a. m.)

Thursday, May 12, 1927. 10 A. M.

(593) TESTIMONY OF S. L. PUGH, FOR DEFENDANTS.

S. L. PUGH,

called on behalf of Defendants, being duly sworn, testifies:

My name is S. L. Pugh. I reside at Long Beach. I am a drilling contractor. I have had quite a lot of experience in the oil well business since 1909, from firing boilers up to drilling contractor. I have done most everything. I have had opportunities for observing the cementing of oil wells during that time. I guess we have drilled by contract practically a hundred wells, and as a driller for other companies I have probably helped cement I would say 150 wells. (594) I am familiar with the different processes employed in cementing wells. I have had experience with the process of Mr. Owen in which he uses a specially constructed plug. As long as Mr. Owen could use his plug we used it exclusively all the time, because we figured it had an advantage over other plugs for several reasons. It had a point that when it went to the bottom you could immediately take off the head and let the crew go to work; instead of laying them off a couple of days, you could go ahead and change the pipe and let them drill in. And another reason we liked to use it was because where you use two plugs you take your head off and let your air in and you don't know whether your cement is outside or inside. You know it is all outside, if it hits bottom; if it indicates it hits bottom you might

(Testimony of S. L. Pugh)

have air on the bottom of your shoe. For that reason we like to use that plug, pump in 20 to 40 feet of cement on top of it, then we know there is cement around the shoe. (595) We just guess at the amount of cement we put on top of the plug, 20 to 40 feet. That is to be sure we have cement on the outside of the pipe or around the shoe. In case in pumping down the cement the float would go by that and push the cement on out, we would still have the cement around the plug and around the shoe of our pipe.

We use rotary mud to pump on top of the cement which is on top of the plug. You couldn't use water. If you put in very much cement you couldn't. I don't believe you could in a deep hole anyway, because it would be too much weight on the outside; you would blow up your pipe, burst your pipe. You would have to have such pressure on the pumps it would be likely to burst the casing. You take a thousand foot hole, or something like that, you could pump water, but where you have these three or four thousand foot holes it would be impossible.

The majority of wells in the last year we have drilled have been cemented around 4200 to 4300 feet.

ON

CROSS EXAMINATION

Mr. Pugh testifies:

I have no connection, directly or indirectly, and have not had any at any time, with the defendant Owen. I am the Pugh of Pugh & Miller. We have loaned some money to Mr. Owen. It run as high, I think he owed us at one time \$18,000. He owes us some now. We

(Testimony of S. L. Pugh)

lent him this money for his cementing business. (597) We didn't have any security. He done all our work, and we owed him money at the time. We have some security today for what he owes us; we have a mortgage on some of his cement trucks, the equipment that he has in the cementing business. That is the only connection I have had with this man Owen in any cementing business of any kind. I am sure of that.

I was not one of the incorporators of the Star Oil Well Cementing Company operated by Mr. Owen; I never had any stock in that company at all. We loaned the company—Mr. Owen—money. I don't remember whether the mortgage calls for (598) Owen or the Star Oil Well Cementing Company. I think it is the Star Oil Well Cementing Company. That is the name under which Mr. Owen is now cementing wells. I think that is the way our note and mortgages are, Star Oil Well Cementing Company. I did not sign the articles of incorporation of the Star Oil *Wel* Cementing Company. I have a brother. Mr. Owen done all our cementing all the time, and we owed him some money, and we kept loaning him some money to put in some more trucks, so that he could do the work. At the time we got our paper we owed him \$2500, I believe. We owed him about \$2500 and he owed us some \$18,000. We had loaned him up to \$18,000 before we got the mortgage on his outfit. We didn't have the scratch of a pen for it. (599) He was supposed to pay us back all right. There wasn't no specified terms as to how he would pay it, and nothing was said as to when he would pay it. We got 7% interest, I believe, on this money. It has been paid, most

(Testimony of S. L. Pugh)

of it, all but about \$4,000. I and my company were not partners with Mr. Owen in this business in any way; we never were. (600) We had nothing written about getting any of the profits of this business. We did talk at one time about going in with him, but we never did. We talked at one time about turning in some stuff we had and going in with him, but we never did do it. We never contributed anything to Mr. Owen's business excepting the \$18,000. We paid that all in before we had any understanding as to how we were to get it back. We didn't have a scratch for it.

THE COURT: Now, Mr. Pugh, I want you to be right on the record here, for your own protection. Counsel asked you if you contributed the \$18,000 to Mr. Owen's business. You didn't contribute anything to his business?

A No. We loaned him \$18,000. Our company loaned the money to Mr. Owen personally. (601) We held him responsible for it. We got our mortgage with the Star Oil Well Cementing Company. Mr. Owen was president, I believe, of that. We knowed Mr. Owen a long time, he done lots of work for us, and he was short of trucks to go to work with, and offered to give us a mortgage on them, or any way we wanted. We just let it ride along, like oil men do, until we had something to show for it, so we got together one day and decided we wanted to be protected, and he gave us a mortgage on his trucks. I am not contributing any money for the defense in this case; I never did. I don't think any of this \$18,000 we advanced Mr. Owen was used for that purpose. I think he spent it a long time ago. I don't know, though.

(Testimony of S. L. Pugh)

Q Haven't you and your attorneys, Mr. Burke, Mr. Herron and Mr. Camarillo, actually directed Mr. Owen as to what was to be done in some of these lawsuits?

(602) No, sir; nothing to do with it. I don't know about the attorneys. I think Mr. Owen did hire the attorneys. I didn't have nothing to do with it. I didn't have anything to do with my attorneys appearing in the case brought against Owen for infringement of the Halliburton mixer. If you told me that my attorneys stated they were representing me in the case, I would still make the statement that they were not representing me. I heard that they were going to represent Mr. Owen, but I don't know whether they did or not. I was not in court. I really don't know. I did not direct that if the case on the Halliburton mixer was to be defended by Owen, that case that was brought by the Perkins Company and Halliburton, that it must be defended by my attorneys, that I would not have it defended by Mr. Westall, or have Mr. Westall have anything to do with it. (603) I might explain that a little fuller. We was at one time talking about buying the DuRell mixer, the one they had the lawsuit about. We tried to buy the mixer, and in case we bought we told Owen we would defend the mixer. But we failed to buy it, couldn't make any deal with Mr. DuRell, so we dropped out of the picture. I do not know that the Star Oil Well Cementing Company, from whom we had the mortgage, defended that case on the basis that they had a license from Mr. DuRell, and that that is why they were using the DuRell mixer. I don't think they did. I don't know whether they did or not. The Star Oil Well Cementing Company used the DuRell mixer a while.

(Testimony of S. L. Pugh)

Referring to this matter of air, I have proof (604) that air interferes with the operation of the Perkins cement system. I have had experience with—even with any plug, if you do not put some cement on top, or if you take the head off and put in a second plug, in that space you have got to have some cement inside, and when you take the head off that cement is going down while you are putting in your plug, and you have a space there sometimes of 200 feet with nothing in the pipe at all. The cement goes down because the weight inside is so much heavier. The cement is so much heavier than the mud is that while you are taking the head off and putting in the plug, that stuff goes down. I have seen that settle a hundred feet.

Q I thought on account of the quantity of cement you had to push the cement through the casing, that you had to put on such high pump pressure you could not use water.

A That is right. The cement goes down quite a ways automatically without any pressure. And so you have 400 sacks of cement, and you pump it down through the pipe. It goes down fine until it gets to the bottom, by itself, without any pressure at all. It will almost gravitate until it gets down to the bottom of the pipe, and then you push this mud up outside with this water, it would be impossible. (605) I put on 1000 pounds pressure when using mud. When you are using mud, that is a great deal heavier than water. In using mud in a deep hole, lots of times we put on 100 or 1000 pounds pressure, in order to get our cement out of the pipe. If you use water on top of that, instead of mud, it would be utterly impossible to pump that cement down with this water. Where you take

(Testimony of S. L. Pugh)

off your head and you have got a 200-foot space there and put another plug there, you have got that air space there, and you don't know whether that is going to be all taken up before you pump it down or not. In lots of cases we have drilled out and found we had no cement in our hole at all. So for protection after that we always have pumped on top of this plug some cement.

I couldn't tell you what the pressure is at the bottom of the well around the plug in the cases of the depths that I have given as illustrating our cement jobs. I couldn't tell you what the pressure is at 4000 feet.

(606) Q What would be the volume the air would occupy, say the amount of air that would fill the casing while the cement was going down 100 feet of casing at the top, atmospheric pressure? What volume would that air occupy down in the bottom of the well, under the pressures that exist there?

A I couldn't tell you that. I think it would occupy some volume. I know by experience. We have used plugs where we put in the plug and then take the head off, and used this plug as an indicator. When the plug hits bottom it indicates the cement is there. We have drilled out lots of times and not found any cement at all. If the plug is not in contact with the cement, the mud pushes the cement down. The mud follows on top of the cement. It does not mix. It follows on top of the plug. (607) You take a plug and put it on top of your cement; in pumping down your mud goes on top of that. Now, as far as we are concerned, in cementing wells the plug is not worth anything, any more than when it hits bottom we know we have got our cement. Otherwise, we might be mistaken.

(Testimony of S. L. Pugh)

Sometimes we measure our cement, and they measure very accurately, and even then sometimes we miss. Sometimes they have a hundred feet of cement in the pipe, and sometimes they pump it all out. So naturally we like a plug system, something that indicates. When it hits the shoe we know we have the cement out. We know we have some cement on top of the plug and some around the shoe. That is the reason we put some on top of the plug. It is the pump pressure that forces the cement down the casing and up outside of the casing where you use the plug. (608) The pump pressure does that with mud, forces mud in on top of your cement. It doesn't affect the cement in front of the plug at all, except it drives it ahead. The volume of mud on top pushes the cement down by pressure from the pump.

Q What pushes the cement down exactly; what is it that contacts with the cement and causes it to move down and up outside the casing?

A It just depends on what method you use. If you use the plug method, it depends on what plug you use. If you use the Perkins plug and you put the first plug under your cement and put the next one on top, then naturally your mud comes on top of your plug, the first plug acting as a barrier between the cement and the mud, and then the cement, and the other plug on top of that. In the other case we use cement even on top of the plug.

Q You haven't answered my question. Does the plug (609) contact with the cement and push the cement down, when you use the Perkins plug?

A Directly on top of the cement, I should say it does. The air is in the pipe on top of the cement; it is between

(Testimony of S. L. Pugh)

the plugs, under the top plug. I would say that some of that air gets by the plug up the well as the plug goes down; I don't know how much of it does; I couldn't say.

Q How much air do you think there is in the bottom of the well below the plug after the plug is landed, using the Perkins system?

A Well, I will tell you, we have—in using the Perkins system we used to put in what we called a spacer about 20 feet long, between the two plugs, to be sure that the top plug (610) would not go plumb out of the shoe, and left that cement from 20 feet up down around the shoe. We have tried that a number of times, and in lots of cases we haven't any cement there. That is what made me think the air took naturally more space than the 20 feet, because we didn't have any cement there at all. I have talked to engineers about it. I don't think I have an engineer here that I can produce to testify to that. The air that I am talking about, that interferes with the cementing, is the air between the plugs; it is the air under the top plug. The air gets in because during the time you are putting in your top plug the cement is going down of its own weight.

Q And that air will not pass up by the plug in the operation so that the plug reaches the top of the cement; is that your idea?

A Not all of them. In some of them it will. (611) Some of them it will work up, but in all cases I know it won't. With the Owen plug, if you drop it in and take the head off, you will have some air in there then. In that case it is just the same with putting the Owen plug in as the Perkins plug. It is not my idea the air will pass

(Testimony of S. L. Pugh)

the Owen and not the Perkins plug. That is the reason we put cement on top, to be sure there is cement there. I don't know whether the cement on top of the plug gets out around the shoe or not; I don't think it would, though. When I say I have an objection to the Perkins plug I am talking about the space that is below the plug that I think is filled with air. If you take the head off of it to put it in there is that same space with the Owen plug, whether there is any cement on top of it or not. (612) You put the plug in, and Mr. Owen has a head that you screw the head up and take and drop the plug in there without taking it off. That is not true with putting cement on top of the plug, not when it drops on the plug. It naturally drops on top of the cement. Then when you drop the closed head, naturally you have a volume of cement all around the plug.

Q You don't need any cement on top if you are putting it in with a closed head, to keep the air in front of it; you can pump fluid on top of it?

A A lot of them do that. We do it for protection, because we think the plug might push the cement all out around the shoe, and we wouldn't have any cement around the shoe. I don't know that you could put the top plug in without taking off the head in the Perkins process. I think they could put it in exactly the same way that we put the Owen plug in.

Q If you handled the two plugs, putting them in the casing in the same way, the Owen plug and the Perkins top plug, you will have air under the plug, if you do not use (613) that closed head, will you not?

A You cannot put in two plugs over the head, where you have got two plugs. If you take the head off, you

(Testimony of S. L. Pugh)

have lost the cement; the cement goes down. I think they could take the head off, put the bottom plug in and then put the head on with your top plug in it. They never have done it, but I think they could do it. But I think they could certainly do it. Where we drop the plug in through the head, you know there really has not been any air in there.

Q But if there was any air there, it would stay on the Owen plug just as much as it would under the Perkins plug, wouldn't it, whether there was any cement on top of the Owen plug or not?

A If you do like Owen does, drop the plug in without taking the head off, why, it would.

Q As a matter of fact, if you had 150 feet of casing at the top filled with air, while you were putting in the (614) plug, when you got down 4000 feet the air would not occupy a foot, would it, under the pressure at 4000 feet?

A I don't know. I am not an engineer; I couldn't tell you.

ON

REDIRECT EXAMINATION

Mr. Pugh testifies:

After a job of cementing is attempted, we generally try to set the casing on bottom. In some cases we don't. We stick it. Assuming we do get it set on the bottom as much as we want, sometimes that excludes the cement that is outside of the casing from coming back in and sometimes it doesn't. We have a guide on the bottom, that is, a cast iron bottom, and if you set it on bottom, sometimes if it is on shaley bottom or a boulder, you break that and it

(Testimony of W. N. Miller)

comes back in. If it hits tight formation or clay, it will shut off the circulation.

I have had considerable experience with the Perkins system. We never took the head off of any well cemented by the Perkins method. (615) We never tried to. They did not advise it and we didn't try to.

TESTIMONY OF W. N. MILLER, FOR DEFENDANTS.

W. N. MILLER,

called on behalf of the Defendants, duly sworn, testifies:

I am the partner of Mr. Pugh who just testified, and the name of our company is the Pugh-Miller Company.

In regard to Mr. Owen borrowing money from the Pugh-Miller Company, the way that came about, Mr. Owen had a patent on a rubber ball to use in cementing wells, and he wanted us to use that system in our cementing, and we did, and it proved to be a success, so he used it on a good many wells, as I understood. After he had used this ball, he found out that a man in Riverside, I forget his name, had a patent on a ball something like his, so he decided it would be a good (617) scheme to buy that patent. And we talked about it—or I did, talked about buying it with him, furnishing the money to buy this patent, and he and I went to Riverside and made a deal for this patent. We talked about going in with him and incorporating with him, which we never did. I don't think that I ever did sign any incorporation papers, though we had talked about it. And from time to time we let Mr.

(Testimony of W. N. Miller)

Owen have the money to use in his business. That is how it came about.

I have used the Perkins process, the two plugs. We never did take the head off of the well after cementing with that process. We was afraid of back pressure. It might be that if the formation was right and you set the casing on bottom, that with part of the weight of a string of pipe on bottom in sticky shale or clay, that there would not be any back pressure with the Perkins system. That could be the case, though. It would not be good business to take the chance. In setting the casing they do not usually put the full weight of the pipe on (618) the formation, because the pipe would settle to one side of the hole, and you might not be able to run the next size of casing through. It would make a crooked hole.

With the use of Owen's plug we have been able to take the head off of the casing, and rely upon the plug to hold the cement outside of the casing.

When plugs are not used in cementing, I don't think that the mud mixes with the cement so as to jeopardize the job in any way. It would mix probably some, (619) but I don't think it would mix enough to do a great lot of harm. If you did not use a plug there would be no way to avoid the effect of mixing of the fluid with the cement with which it came in contact.

I have had experience cementing without plugs. I have helped cement quite a few wells. I cemented wells, helped cement wells, before I ever seen a plug, by the measuring system. In a good many cases those jobs were successful. I don't think there is any comparison of those jobs with the use of a system where there is some kind of an indi-

(Testimony of W. N. Miller)

cator, (620) I mean the plug system or the rubber ball. The plug shuts off the circulation when it reaches the bottom of the casing. The value of the plug in cementing is that it indicates when the cement is out of the pipe. As to whether it has any value as a separator for the cement and the fluid is a question. I imagine that it might be of some value, but I would not consider it of much value on account of so many wells have been successfully cemented with the measuring system that I don't believe that the mud will mix with the cement enough to make any particular difference. It is always good business to leave some cement in the pipe either way that it is cemented. They usually guess at the amount of cement they leave in the pipe, from 20 feet sometimes to a hundred. (621) It depends on a man's ideas that is doing the work. That cement is left in the casing for protection; safety. If the cement was pumped too far it might be pumped far enough up on the outside of the casing that it would expose the water at the bottom and give the water a chance to leak in, and if it is left inside the casing, then we know that the cement is all around the bottom.

MR. L. S. LYON: If your Honor please, in regard to the testimony of these witnesses as to the value of the plug and the no-plug method, as I understand it, our objection and exception noted yesterday still applies today.

The Court: Oh, yes, you haven't waived any right that you have.

(Testimony of W. N. Miller)

ON

CROSS EXAMINATION

Mr. Miller testifies:

Some people use float valves on the casing in wells that are being drilled at the present time. We don't use them; we do not use them at all.

(622) Q As a matter of fact, if you take off the circulating head on a well after the cement has been pumped to position, before the cement sets, and you have landed your casing on bottom and you do not get any return, you cannot tell whether it is because there is no back pressure or because the back pressure is shut off by the landing of the casing at the bottom, or for what reason, can you? There is no way of knowing?

A Well, yes, there is a way of knowing, in my opinion.

Q Suppose you would land your casing in a 4000-foot well, with one of these plugs that defendant uses here, with the dogs on it, and you did not get any back pressure, at the top of the well you would not know whether it was because of the plug holding or because of the casing holding at the bottom?

A If the pipe was set on bottom, then there would be a question. If it was left off bottom, then there would not be any question. We have taken the circulating heads off of wells we cemented. It depends on whether we have got work for the crew, and in how big a hurry we are to get back in this particular well.

(623) We have cemented approximately 35 or 40 wells all told with this plug of Inskeep with the dogs on it. We left the circulating head on probably half of them for two hours after we shut off our pump, and probably half of

(Testimony of Robert McKeon)

them we have taken the circulating head off immediately. That is just an estimate. We left the circulating head on half of them for the simple reason we would finish up on that particular job and move the crew to another location. (624) We left the head on to keep anybody from dropping anything in the hole. In some cases we had no particular objection—what I mean by that, we would just as soon it would be taken off. The reason I have stated is the only explanation I have for not taking it off. Sometimes we left the head on as long as three or four days, or until maybe Mr. Owen wanted his head.

(625) TESTIMONY OF ROBERT McKEON, FOR DEFENDANTS.

ROBERT McKEON,

called on behalf of the Defendants, duly sworn, testifies:

My name is Robert McKeon. I reside in Los Angeles. My business is drilling oil wells. I have been connected with the oil business since 1909. I have employed several cement contractors, Perkins or Owen, Wigle; I believe that is all in the last, oh, twelve years. During that time I have had considerable opportunity for observation of these different methods of cementing. I have been present on a number of occasions for each of those cement contractors, when they were cementing the wells.

(626) After mixing the cement, Mr. Owen would pump that into the well or into the casing, and then release the plug on top of the cement with the riders on it, and would pump fluid in until the plug either hit the bottom of the hole, or, in case we had a baffle plate or guide, until

(Testimony of A. E. Dutzi)

the plug stopped on that, and would shut off the circulation and the pump would stop. That was our method of ascertaining whether our cement was at the point we desired. That plug in my opinion was used as a check or telltale to tell whether or not your cement was at the point you wanted it at. After the cementing by this Owen method, on a number of occasions we took the head off of the well.

(628) TESTIMONY OF A. E. DUTZI, FOR DEFENDANTS.

A. E. DUTZI,

called on behalf of the Defendants, duly sworn, testifies:

My name is A. E. Dutzi. I live at Anaheim, California. I am in the oil well business, an oil well worker. I have been connected with that business for seven years.

I have helped cement wells with the plug that Mr. Owen uses. I was present at the cementing of Texas Holding Well No. 3. First, after we had in all of the pipe we got circulation, and after we had circulation we pumped in the required amount of cement, and on top of that we put Mr. Owen's plug, and on top of the plug I think we put about six sacks of cement and put fluid on top and pumped (629) it to bottom. The usual procedure was to close all valves after we got the cement on bottom. That is the system I had been used to. And I closed them according to routine. I had always been used to closing those valves. And it happened to be that Mr. Owen was there, and he called up and told me to open the valves

(Testimony of A. E. Dutzi)

again, and I opened them. I did not close them after that.

ON

CROSS EXAMINATION

Mr. Dutzi testifies:

Q Mr. Dutzi, didn't Mr. Swartz have the valves closed again as soon as you had opened them?

A What Swartz? I know several Swartzs. I just got through working with one for the California Petroleum. I have in mind the particular well Mr. Westall is talking about. According to my recollection, there might have been ten or fifteen there when that well was cemented. Our crew consisted of Mr. Kuykendall as driller (630)—you must remember that happened four years ago and my memory doesn't bring back to me all of the fellows I ever worked with. Let's see; who else was on that well? If my memory is correct, Dave Johnson was there. I wasn't here yesterday when Mr. Dave Johnson testified. If he testified that immediately after opening the valves they were ordered closed by Mr. Swartz, who was in charge for the Texas Holding Company, I don't remember nothing about that. I just remember that I had closed the valves because I had been used to doing that, and then I opened them. I don't know anything about how long they stayed open.

(631) If I remember correctly, we kept a strain on the pipe in that well. I couldn't see the bottom; I couldn't tell you whether the bottom of the pipe was on bottom. I say we kept a strain on the pipe, that is, all of the weight wasn't on bottom, if my recollection is correct. I couldn't tell either whether the pipe was suspended or not, that is, all of the weight suspended. I don't know whether the

(Testimony of J. M. Owen)

bottom of the casing was in contact with the bottom of the well or not at the time I opened those valves.

(632) TESTIMONY OF J. M. OWEN, FOR DEFENDANTS.

J. M. OWEN,

recalled for Defendants, previously sworn, testifies:

I am one of the defendants in this case. I will say I have cemented between 200 and 250 wells using this specially constructed packer, the Inskeep plug. I couldn't say exactly. I would say I was present at the cementing of approximately 90 per cent of those wells. We got circulation around our pipe after it was put in the hole and pumped our cement in, put our plug in, and pumped from 20 to 50 feet of cement on top of the (633) plug, on all of them—I always did that—and pumped it to bottom. And I will say there wasn't over three or four wells out of all of them that I cemented that the pressure wasn't released, and 75 per cent of the heads were taken off. After we get through with a job of cementing we leave the well, sometimes with the head off and sometimes with it on. I don't know what they do with the head after I leave. I leave such a few of them at the well that I couldn't tell anything about what they do to them. I didn't have many heads. I saved lots of money by taking that head with me on different jobs. I have cemented as high as four wells a day with the same head. Just as soon as I would get done with a job I would take the head off and go right to another well. There were three cemented the (634) day that Texas Holding well was, with the same head.

(Testimony of J. M. Owen)

There were two or three other jobs that we had to leave the tight head on. Sometimes we would pump the plug through the pipe. The guide would be broken off of the bottom, and it would get out, and of course it wouldn't stop your pump or hold the pressure, either. So you would have to leave your tight head on. Where the guide broke the plug did not perform any function of indicator or of holding the cement outside of the casing.

ON

CROSS EXAMINATION

Mr. Owen testifies:

I performed around 40 jobs with the Wigle plug before the injunction was issued in this case against me. With the Wigle plug we keep the tight head on in each case. And we establish circulation and pump the cement down the casing beneath the plug, with some cement on top of the plug, and when the plug lands in an obstruction at the bottom of the casing it indicates (637) automatically at the top, and the pumps are shut off, and then you allow the well to stand with the tight head on and with the casing full of fluid. In the 25% of the wells that we didn't take the head off when we used this Inskeep plug some of them were wells where the well owners furnished the heads, and in some cases we had to use our heads. I couldn't give you the names of any parties that that was true concerning, that is, the names of the wells and their location. Some of the companies furnished their own heads or part of the heads; not all of them. When the companies furnished their own heads, I didn't take the head off after the cementing job. I didn't have anything to do with them.

(Testimony of H. O. Bales)

I don't remember whether or not I cemented any of these jobs with the Inskip plug in which I kept a tight head on the well after I discontinued the pumping and while the cement was setting, after I had the injunction issued against me in this case. (638) There might have been two or three, or something like that, where we would have accidents and the plug would be pumped out.

Q Then if this plug didn't work, in those cases where this plug or the landing of the casing, or something of that kind, didn't actually hold the cement back of the casing and prevent the return, you in fact closed in the head, did you not, in all of those cases? You didn't let the cement come up the pipe?

A You would have to. We did that.

(Stipulated that the patent to Wigle in the back portion of the file wrapper and contents of Perkins patent in suit, marked Defendants' Exhibit B, is covered by the stipulation.)

(642) TESTIMONY OF H. O. BALES, FOR DEFENDANTS.

H. O. BALES,

called on behalf of Defendants, duly sworn, testifies:

My name is H. O. Bales. I reside at Long Beach. I am a salesman. I was connected with the defendants in this case in the oil well cementing business. I had charge of the manufacture of the Inskip plugs. I know what kind of a plug was sent out for the cementing of the U. S. Royalty Well. The plug was made for 15½-inch screw

(Testimony of H. O. Bales)

pipe, and the packer on that plug was too small for a 16-inch screw pipe, and the packer on that plug was too small for a 16-inch stovepipe. I received the orders for these different plugs (643) for use on the different wells, and I received the order for this particular well. I sent the plug out knowing that it would possibly fail. And I think I told them so at the time. I had no larger plugs there at that time because I had been unable to get any packing rubbers from the manufacturer.

I made Plaintiff's Exhibit 6. When this plug is pumped down, these slips engage in the side of the pipe, and the back pressure from the bottom forces this piece up and presses this down, packing this rubber off around the pipe. If I had that little model there, I think I could show it more clearly. This pin is entered firmly in this guide, the rubber packer is set on top, and this piece is put on here, which is free on this mandrel, (644) and the pump element is put on top here. These slips riding in the side of the casing engage slightly, and when the pressure is released and the fluid comes back, forcing this piece up—there was a gasket here—it pushes that up like that, and it expands that rubber until it comes in contact with the casing and wedges this piece down in the rubber, securing an absolute seal around the plug.

(Model referred to received in evidence as Defendants' Exhibit E.)

DEFENDANTS REST.

(Patents referred to in file wrapper of Perkins patent in suit as prior art received in evidence as Plaintiff's Exhibit 15.)

(Testimony of Charles Doolittle.)

(645) MR. L. S. LYON: At this time we offer in evidence in rebuttal the depositions of Charles Doolittle and James E. Ribb, witnesses on behalf of plaintiff, taken in Shreveport, Louisiana, on the 5th day of July, 1924, and ask that they be considered read.

(Said depositions marked Plaintiff's Exhibit 16, and are as follows:)

TESTIMONY OF CHARLES DOOLITTLE, FOR PLAINTIFF.

CHARLES DOOLITTLE,

called on behalf of Plaintiff, duly sworn, testifies:

My name is Charles H. Doolittle; I am sixty-six years old the 14th of next November. My residence is Homer, Louisiana. I am District Superintendent for the Homer District for the Texas Company. I think I have been in the employ of that company since 1911 or 1912. It was 1912 when I went to work for the Texas Company; 1912.

I have been in the oil business all my life. I was raised on Oil Creek and I have been working around the oil field for fifty years. I went to work when I was fourteen years old, I went to work on the Steel farm, Oil Creek, Pennsylvania. I came to Louisiana on the 7th day of February, 1907. I left the Illinois field to come down here for the Busch-Everett Company. I had worked for the Standard Oil Company twenty-two years, and that was practically the only company I ever worked for outside of my father before that. I worked for the Standard in New York, Pennsylvania, Ohio, Indiana, Illinois, Tennessee, West Virginia and Oklahoma. My position when I came here in February, 1907, was production man and superin-

(Testimony of Charles Doolittle.)

tendent, but the first work I done when I went to Louisiana I helped lease 5300 acres of land around Mira in Caddo Parish, and then they brought in a well back of Oil City known as No. 1 Atchison, which came in a 5000 barrel well, and then they called me in to take charge of operations. That was the Busch-Everett Company. In 1908, 1909 and 1910 Harper & McCann had the contract for drilling the wells that were drilled for Busch-Everett. I had the supervision of these wells when they set the casing, to see that the casing was tight, and after they set the casing I would have them bail it and at that time they used cement, siphoned it down the hole—they would run the cement in the hole, let it stand three or four days, and then drill it inside and let it stand six or seven days more, and then we would bail the casing to see if the casing was tight.

I know of the method of cementing which consists of forcing the cement down the regular well casing by means of a plug. I seen that done, and the first time I ever seen that done was on the Jolly Farm on the Busch-Everett well No. 4, and it was Clark & Mitchell drillers—Jim Clark and Mike Mitchell. That was along in 1911, in June—let me see; well, it was the first of June, 1911, that that was done.

Q Will you state briefly how you prepared for that particular job and how you remember it?

MR. WESTALL: I object to that as incompetent, irrelevant, immaterial, as not being far enough back to be material to any issue in the case, it being after the date of application for the patent in suit, probably after the granting of the patent.

(Testimony of Charles Doolittle.)

A The first well I ever seen done that way Jim Clark and Mike Mitchell done that way and Clark made the plug. I went to the driller and asked him, "What is he doing?" and he said, "He is making a plug to cement the well." I said, "How does it work?" and he said, "He makes the plug and he puts a piece of belting on it and puts a piece about two feet long two by four scantling, nails it on and drops that in the hole, and then he puts the cement on top, and when he gets the required amount of cement in he puts another plug in on it, and then he lifts the casing off about a foot from bottom, and then pumps that down until the top plug comes in contact with the two by four on the bottom and shut it off, and then he set his casing down and leaves the pressure on the pump in the casing for eight or ten or eleven days." And that is the way he did. That was about the whole thing that was said, but I asked him then, I said, "That is a pretty good scheme you have put me wise to," and he says, "Yes, I understand this is the way they cement wells in California," he said, "That is the California scheme."

All I had to do with the preparation for that job was I got thirty sacks of cement and thirty sacks of sand for him, and an old piece of belting. We put in half sand and half cement, and we put about thirty sacks in the well. He asked me for some belting, and I had a piece of belting in the warehouse, I had a piece about four or five feet of twelve inch five ply belting, and I gave him that to put on the plug. That is the first time I ever saw a plug used in cementing a well; that is the first I ever heard of one being used. I never seen anybody use any cement only Mr. Harper before that. Mr. Harper put the cement

(Testimony of Charles Doolittle.)

in the hole, and then he put the swivel on and set it over the 4-inch drill stem and pumped down that drill stem, and after so long a time, as near as I understood what he was doing, he took and pumped that cement down to the bottom of the hole. He had some kind of system about that, he pumped it twenty minutes on one and seventeen on another, and maybe something else on another, and then shut it down and set his casing on bottom and let it stand four or five or six days, and drilled the cement out and let it stand again, and then bailed the casing.

Q How long had you known of Harper using this last method that you have described before you saw this plug method used by Jim Clark?

A Well, the length of time—I don't know that he ever used a plug, I couldn't swear to that at all. All I could say is I knew he finished one well after that plug was used, and that is the only one I know of, and that was on Jolly No. 7.

Q He cemented one with a plug?

A After I seen that plug used, I say. I don't know whether he used a plug or not. I never seen that used on any job before this job of Jim Clark's. I was present at wells that Harper cemented; I seen Chew No. 1, Chew No. 2, Levy Board No. 1, Section 33 and Section 20 well cemented by Harper; but then there was a whole lot of other ones he had cemented and contracted, but it wasn't necessary, I didn't think, for me to be there, because if the casing wasn't tight when they bailed it and after we let it set the proper length of time, I didn't have to accept the well. I didn't have to follow up the cementing business because it was the tight casing I had to see after, and

(Testimony of Charles Doolittle.)

I didn't have to accept it unless it was tight. On the Hill well, I saw him cement that; that was a gas well. He didn't use a plug. He didn't use any plug on Pitt No. 4; he used no plug of any kind that I know of on that well. If he did I didn't see it. There were three Chew wells that Harper cemented. There was one, two and three. I seen one and three cemented. I never seen him use any plug. I think these Chew wells were cemented in 1910, might have been 1911, but I think really in 1910, though I am not positive but that was quite a little while before I ever seen Clark & Mitchell use the plug system. Harper's system worked all right, his wells was all dry with the exception of one, and that was Levy Board Section 22, No. 1, and that one he made a complete failure of. That was cemented the same way, by gravitation, and no plug—I didn't see any plug used in there.

The only very great advantage of the plug system over the siphon system was in getting your cement on the outside of the casing where the two plugs come together, the cement you put in there you got it all on the outside of the casing, while with the other way it was a question whether you got half of it on the outside and left half on the inside. There was that advantage, but the principal advantage was that it didn't take you—it didn't cost so much money, in the other way they let the well stand only two or three days before it got too hard before you drilled it out. Then they drilled out that inside, and then let the well stand three or four days longer. On that Levy Board well that I referred to, it just didn't hold, that is all. I was there when they bailed it and it gave down. They bailed down twelve or fourteen hundred feet when the driller said,

(Testimony of Charles Doolittle.)

"Doolittle, the gas is eating in on us," and I said, "Gas, nothing, your casing has simply slipped." And Mr. Harper came along in about twenty minutes, and he said, "The casing is leaking," and I called him over and said, "No, I never saw one do that way before except when the cement broke loose, and that is exactly what has happened here." And that was all there was to it. I couldn't tell you what happened to Harper's business with the Busch-Everett as a consequence of that, but I know I went in and telephoned for Mr. Mercer and Mr. Mercer came up immediately, and they started to bailing the well, and the thing was full of water, and he says to me, "Charlie, I will look after this," he said, "You go and look after the Hosston district." And that is all I know about it. Mr. Harper drilled one more well on the Jolly farm after that for Busch-Everett. I don't know whether a plug was used in that well; I didn't see the well. He drilled that well afterwards; he was drilling that well at that time and he had a fellow by the name of Jordon who was driller, Wesley Jordon I think was his name. That was the last well that Harper drilled for Busch-Everett.

I saw Mr. Harper at the Inn Hotel last fall and he asked me where I was living, and I told him at Homer, and he asked me what I was doing, and I told him I was superintendent for the Homer District with The Texas people and was living on The Texas Company's property at Homer. And he said, "I am glad I saw you," he says, "Looks like we may get into trouble on this cementing business, and if we want to use you I will come to see you;" but he didn't come to see me.

I have not a cent interest in the world in this case or the outcome of it, not a bean that I know of. On this

(Testimony of Charles Doolittle.)

well that I mentioned Jim Clark in connection with, one of the drillers I didn't know, but the night driller—I didn't know who the night driller was, but the day driller was Frank—I forget that fellow's name now, Frank Kellam, I think it is, Kellam.

On Pitt No. 4 well I never seen any plugs used there; Harper run it in just the same as he did on the other wells, with that siphon method.

Q Every well that you ever saw or knew of Harper cementing prior to your seeing this job of Jim Clark was cemented by the siphon method without any plugs, is that correct?

MR. WESTALL: That is objected to as very grossly leading and as being contrary to the testimony of the witness already given.

A Why, I never seen Harper use any plug at all; on all the wells I seen him cement he cemented with the siphon system.

ON

CROSS EXAMINATION

Mr. Doolittle testifies:

I do not know that my company, The Texas Company, is interested in this case on the side of the patent of Mr. Perkins and Mr. Halliburton. I never was informed of any such thing as that. I never heard that it was, that they had any interest. I was never told that the Texas Company had taken a license under the Perkins patent: never heard anything of that kind at all, that the Texas Company had taken a license. The Texas Company never said a word to me in regard to the patent.

Q Do you know whether or not the Texas Company, the Magnolia Company, the Gulf Company and the Sun

(Testimony of Charles Doolittle.)

Company have entered into some kind of an arrangement or agreement with Mr. Halliburton or Mr. Perkins whereby they would buy the right to use this process in this territory?

A No, sir, that is the first time I ever heard of it, when you told me right here, that is the first time I ever heard it.

Before coming up here to testify I talked to Mr. Lyon and Mr. Halliburton and Mr. Bell. About a week ago I talked to Mr. Halliburton first about this case, when they came out to my house. I never seen the gentleman at all until he came out and introduced himself, and I went out there and talked to him, and then he introduced me to the other gentlemen that he had with him, and I invited them into the house, and they came in the house and talked the matter over with me. That is the first time I ever heard anything about it. The first time I ever talked to Mr. Lyon, the attorney, was the same day; they all came out together. Mr. Bell was present, and Mr. Perkins was present.

I first arrived here in this Louisiana field on the 7th day of February, 1907. At that time, when I first come here, they didn't have no wells drilled; they was drilling one well. That was Atchison No. 1 back of Oil City on the Hill farm. I was helping lease then, and when that well came in I took charge of the production and looked after it after that well came in. The next well that was drilled that I was connected with was in Caddo. I don't know the name of it, just on Section 20, back east of Vivian, I don't know the name, No. 1, Section 20, I think. I mean Well No. 1, on Section 20. I think that well

(Testimony of Charles Doolittle.)

was drilled in about 1908, along in the fall of 1908 I went up there to see them set the 6-inch casing, and then they drilled it down and got salt water, and set a string of 4½ casing, and I was there when they set the four and a half casing.

The next well I had connection with was that Wild well No. 1. That was in the Hosston District, a gas well. That is the next one I saw; I saw that well. That was drilled in 1909, sometime in the fall. Between the fall of 1908 and the fall of 1909 I was looking after the production they had in back of Oil City. At that time I was not out observing the drilling and operation of oil wells that were sunk between the fall of 1908 and the fall of 1909. Well, I seen the operations on wells at that time, but I didn't see the cementing on them. I was there and went and measured a good many of them.

Q Well, I thought you stated the only wells you had any connection with were in the fall of 1908, and then you were not connected with any until the fall of 1909, is that correct?

A No, I didn't follow them up on the cementing business.

Q What did you do with regard to the wells? What, if anything, did you do then? Did you observe any of the wells between the fall of 1908 and 1909?

A No, I didn't go and measure them up. That Hill well was the first one I went to measure up after they had the casing set. I did not see anything else with regard to any of the wells that were drilled between the fall of 1908 and the fall of 1909. I was looking after the production back of Oil City. I did not have any opportunity

(Testimony of Charles Doolittle.)

to observe the drilling or the cementing or anything else in connection with the wells that were drilled between the fall of 1908 and the fall of 1909.

Hill No. 1 well was drilled along in November or December, October, 1909, sometime along in there. The first time I ever saw a plug used was on Jolly No. 4 in 1911, and at that time two plugs were used. I seen one plug used afterwards. I seen one used after that along about Naborton, when everybody was using it then. That was along in '13 and '14. I have no positive, definite information that is based upon my own observation of how any well was cemented between the fall of 1908 and the fall of 1909. Only that one well I mentioned there, that is the only one I seen.

I seen the siphon method of cementing used by Harper & McCann in that well in Section 20; that was in the fall of 1908. I was right at that well. I went up there with a man by the name of Merrit Salter. We went up there and seen it. I didn't see them use any plug or sacks through the drill stem in that siphon method. I went up there to look at the well. I met him at Oil City, and he said, "They are going to cement that 4-inch pipe and let's go over there and see it done," and we did. He was looking after the drilling at that time.

The plug I saw used on Jolly No. 4 well was in May or June, 1911. Jim Clark and Mike Mitchell were the contractors. Between the fall of 1909 and during 1910 I was at Chew No. 1, No. 2, No. 3 and Levy Board No. 1 when they were cemented. I think that was in 1909 or '10. I just can't remember. If I had known I was going to be asked that question I could have looked it up from

(Testimony of Charles Doolittle.)

the logs and found out, but I don't remember offhand with them wells were cemented, but it was in 1909 or '10, in there somewhere. I was not as late as 1912, because that was before they had this excitement on Section 22, and that was when they drilled them wells. This was in 1909 or '10, and that was before I was assigned to the Hosston district.

Pitt No. 4 was cemented in 1910, along in the summer sometime. I have not looked up any records to verify my statement. If I had known this was coming off I would have been stronger than horse radish, because I would have went and posted myself by looking at the records. I didn't think I was going to be called up here to testify, because I would have gone to the office and got them; I suppose they have got them all. At the time Mr. Lyon, Mr. Bell and Mr. Perkins and Mr. Halliburton called on me and talked to me, they told me they would perhaps need my testimony, but I didn't know they was going to take any affidavit or anything like that. I just thought they was doing like Mr. Harper done; he just asked me the question up there, and that was all there was to it.

The conversation I had with those four gentlemen was about a month ago. They asked me what did I know about this cementing and when these wells were cemented, and if I ever seen the plug system used, and I told them when and who I seen it done by.

I think Levy Board No. 1 well was cemented in either 1909 or 1910, I don't know whether it was in 1909 or '10, but I think it was '10. I told you what I said to these four gentlemen right here; you heard all I told

(Testimony of James E. Ribb.)

them; I just repeated what I told them since I have been in here. Everything I told them he has it right here, he has got it (pointing to Reporter). I could have went and got all the records of these wells if I had been posted on that, because they have got them all there, I feel pretty sure.

I haven't seen Frank Kellam for a year; I don't know whether he is living or not. I haven't seen—wait just a minute now. Yes, he was drilling a well down below Mansfield along about a year ago this fall, and I went down to see what the well was doing—they sent me down there to scout it and he was drilling the well, and that is the only time I have seen Frank Kellam in five years.

TESTIMONY OF JAMES E. RIBB, FOR PLAINTIFF.

JAMES E. RIBB,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is James E. Ribb. I am fifty-two years old. I live at 1407 West Kirby Place, Shreveport, Louisiana. I am in the oil and gas business, and have been in that business thirty-three or -four years, ever since I was big enough to work. I was born in Pennsylvania, and my first experience in the oil business was at Little Washington, Pennsylvania, and I have been engaged in the oil business all of my life.

I came to Louisiana in the summer of 1911, and went to work for the Pure Oil Company as superintendent. Prior to coming to Louisiana I was drilling and producing

(Testimony of James E. Ribb.)

with the Carter Oil Company in West Virginia. I was with them about eighteen years. Outside of that, before coming to Louisiana, I had experience in the oil business in Little Washington. I never knew of cementing oil wells before I came to Louisiana. When I arrived here as superintendent for the Pure Oil Company I had full charge of the production and drilling operations for the company. The company were practically new in here, that is, they had been here for a year before I came here, but they were practically new here. They had drilled several wells prior to my time, and then we drilled along all the time, I was with them, had two or three wells running at a time, in different parishes, in Caddo at first and then DeSoto parish.

We had quite a bit of trouble with getting a seat at that time. In trying to shut off the water we were using packers at that time, that is, the Pure Oil Company were using packers at that time on the water string; we cemented the surface pipe around the outside by siphoning the cement down around the 10-inch. The water string is the last string, or the 6-inch, the string that runs from the top of the oil sand to the top of the well. We were using packers at that time in landing the casing, to shut off the water. The success we were having depended on the formation. Sometimes we had fairly good success, where we had a gumbo seating, and sometimes we have gumbo and set in the shale, and we had a good deal of trouble on some of the wells. We couldn't get a water shutoff. We had to do the best we could to handle that water, pumped it, sometimes it would make 85% water and 15% oil. That was my experience when I

(Testimony of James E. Ribb.)

came here. I remember one well in particular we couldn't get a seat with a packer, and we drove that eight or ten feet at a time and tested it, and it would still leak, and we drove it about forty feet trying to get a water shut-off. None of these wells were cemented around the water string to exclude the water.

We cement here now on the water string to exclude water. We use one and two plugs. Some use two plugs and some one. I couldn't say the exact date I first saw a well cemented to exclude water, but it was several months after I came here and we had drilled several wells. It was somewhere in the early part of 1912 and that was done by the Gulf Refining Company. We were having lots of trouble, and the contractor that was drilling for me at the time mentioned to me that the Gulf Refining Company was going to try a method used in California in cementing the casing, and he said he thought we should go down and see it done, and I told him by all means we should, if there was any better way of getting a shut-off than we were doing, we had better go see that job done. So we went and saw the well cemented. They cemented it with two plugs. I had not at that time seen the plug system for cementing used before that. In fact, I hadn't heard about cementing the water string and didn't know anything about it, and that was the first cementing job I ever saw. I had been around those fields considerably; I had been here five or six months then. I was in touch with the other operators here and what they were doing. I met them naturally every day, coming in and out on the trains, went out in the morning and returned in the evening on the trains and met them.

(Testimony of James E. Ribb.)

Q To what extent if you know was the discussion of water breaking into the wells in this locality at that time, if any?

MR. WESTALL: That is objected to as hearsay and incompetent, irrelevant and immaterial.

A Well, it was discussed more or less, the trouble they had with casing and water; water getting in on the sand.

Q Then that wasn't just the trouble of the Pure Oil Company alone?

A. No, as far as I know and from the talk that went on, I guess everybody was having the same trouble.

MR. WESTALL: I move to strike out the last question and answer as being hearsay evidence.

THE WITNESS: I did not hear anybody suggest cementing with a plug to shut off water until after I saw this job of the Gulf.

After learning that the Gulf Refining Company intended to make a try-out with this California method, I went to see the cementing job done. That was in somewhere around the early part of 1912, right close, I think—might have been the last part of 1911 or the first part of 1912.

I have used the two-plug system of cementing a lot. The method that the Gulf well I referred to was used was just about the same as this two-plug system as I now know it, except they made a tapered plug for the bottom plug and then turned the tapered end up, which they don't use anymore. We have used one plug instead of two in later wells, after that, and when we used one plug we used a sack of shale for the lower plug, we never run one

(Testimony of James E. Ribb.)

plug alone without something below the cement. I tried the plugs on the next well I drilled after this Gulf well. We used two plugs just exactly like the Gulf did. It was sometime later, quite a while later on, that I first learned of the use of a single plug above the cement and no sort of a plug underneath. Between the time I saw this two-plug system used by the Gulf and my first knowledge of the one-plug system, the two-plug and one-plug system was used in this territory by several. Most of them used the two-plug, but I think R. E. Allison was the first man that used one plug. It was quite a while after the Gulf well I referred to, because Bob Allison didn't cement for some time after the rest of them started to cementing. I wouldn't say how long it was, but it was some time after. My best knowledge is that the two-plug system was used in this country first and the one-plug system was developed later.

We used the two-plug system just like the Gulf on the next well I drilled, and from *them* on it has been used in all wells I have anything to do with. I can state why the Pure Oil Company began the use of the plug system for cementing wells. The Gulf well job was a satisfactory job, I never heard anything other than that they shut off the water and it was successful. I think this plug method has been a wonderful improvement in this country.

I am the J. E. Ribb who testified before the United States District Court for the Western District of Oklahoma in the case of Erle P. Halliburton versus Burrus et al in Equity No. 547, in May, 1923. I have no interest in the outcome of this particular case one way or the other.

(Testimony of James E. Ribb.)

Q Do you know to what extent this method was adopted in Louisiana following your first knowledge or observation of the same on the Gulf well; by this method I refer to the plug method of cementing?

MR. WESTALL: I object to that question and call counsel's attention to the fact that there is no issue at all raised in regard to the use of the plug. All of the witnesses who had knowledge or testified, testified that this system had been used continuously ever since the latter part of 1908.

A Well, naturally, everyone adopted cementing. The Producers Oil Company, however, did not at that time, and Bob Allison I don't believe did. I mean this method was adopted after the Gulf well was cemented.

ON

CROSS EXAMINATION

Mr. Ribb testifies:

I am not related in any way to Mr. Halliburton, or connected in business with him in any way. I am not related to Mr. Perkins, though I have known him since childhood. We have not been close friends since that time. I never met him until I met him in Oklahoma since I was a little boy five or six years old. I testified in the case of Halliburton vs. Burrus et al. The trial of that case was at Guthrie, Oklahoma, and my place of residence is Shreveport, Louisiana. Mr. Bell paid my transportation up there to testify, and for my expenses on my trip up there. Mr. Wrightman, who is a very good friend of mine, called me up over the telephone and asked me would I come to Guthrie and testify in a case in the Federal Court, and I told him I would.

(Testimony of James E. Ribb.)

No arrangement was made with me or agreement had to give me any interest or pay me anything in that State or this one. I haven't any arrangement for compensation for my services other than Mr. Halliburton asked me if I knew certain people in Shreveport, and I told him I did, and I went with him and introduced him to some, and he asked me to look up some records, which I did, and he paid me at the regular rate of salary I was receiving. He paid me at the rate of \$400 per month, just for the days I worked. He paid me two or three different times, for certain work, I don't know exactly how much; it was not five or six hundred dollars or three hundred. It might be around in the neighborhood of a hundred and fifty. He doesn't owe me anything for my services now.

I am not connected with any company at present. I was with the Continental Asphalt & Petroleum Company until July 1st. I have no arrangement whereby I will receive any interest in cementing business if this litigation turns out successfully in favor of Halliburton or Perkins. There is no agreement for my employment in case of a successful termination of this suit in favor of Halliburton or Perkins.

I have had no other business relations with Mr. Halliburton or Mr. Perkins or Mr. Bell, or with any of their business interests or the Perkins patent.

The first well I saw cemented was in the early part of 1912. I went to the well; it was a Levee Board well of the Gulf Refining Company. Prior to that time I had never had any especial interest in cementing operations. I knew nothing about cementing the deep string or

(Testimony of James E. Ribb.)

lower string of pipe or casing. We had cemented surface casing before. I don't know whether or not the water string had been cemented prior to that time; I never heard of it if it had been. I never heard at that time that Harper & McCann had been successfully cementing wells with the use of plugs as indicators from 1908. I didn't know of that. I had never heard it mentioned in this field up until that time. I knew there had been a great many wells that had been drilled prior to that time, and I knew that these wells must have encountered water which had to be shut off. We were trying everything to shut water off, all of us; some of them used a long shoe, some used a left-hand nipple, and some used packers; they were trying everything. But I was new in this field at that time, and I had never heard of cementing or anything of that kind being done in the field. I never used a left-hand nipple, and don't know how they were used. In the early part of 1912 I had used lots of packers and understand how water was shut off by the use of packers. Charlie Clayton of the Producers Oil Company had a patented packer. I used some of those, and I used some of the rope packers made by the Oil City Iron Works. Mr. Clayton wasn't connected with the Gulf Company at that time. The Producers Oil Company used the Clayton packer; I don't know whether the Gulf Company used it or not. They possibly did, but as far as I know I don't know. I couldn't say what other company used the Clayton packers at that time. If they did use this plug system for seven or eight years prior to that time, they kept it mighty quiet, nobody seemed to talk about it.

(Testimony of James E. Ribb.)

There were lots of wells drilled in this field when I first saw the plug system used. The field was several years old when I came to this part of the field. I wouldn't attempt to say how many wells there were in existence at that time, but there was possibly several hundred. There were a good many of these wells that were shallow wells, and the surface string shut off the water in those, but on the deep wells of course they had to have some way to shut the water off. I have no knowledge of how many were shallow wells and could be shut off with the surface casing. I know McCann & Harper, but I knew nothing about their operations.

ON

REDIRECT EXAMINATION

Mr. Ribb testifies:

This Gulf well that I saw the cementing job on was southwest of Vivian. The Gulf had several Levee Board leases, probably fifteen or twenty, named differently, Gulf A and Gulf C and Levee Board Fee and Levee Board well, and it was a Levee Board well south of Vivian.

Q You say you introduced Mr. Harper and Mr. Bell or Mr. Perkins to different parties here that had knowledge of the early history of cementing. Will you please state what you found upon such introduction, to be the situation here with regard to these parties who had knowledge of these transactions and particularly their present intentions in the matter?

MR. WESTALL: I object to that as incompetent, irrelevant and immaterial and calling for hearsay evidence, as inquiring into a matter which obviously the witness

(Testimony of James E. Ribb.)

cannot know, namely, the mental state of the parties referred to, and is not proper redirect examination.

A Well, they just stated they would rather not testify one way or the other, but they thought that they would stay with the bunch here, that they didn't like to pay that \$250 royalty.

ON

RE CROSS EXAMINATION

Mr. Ribb testifies:

I introduced these gentlemen to Mr. C. W. Brown, Frank Van Cleave, M. O. Rife, and I took Mr. Bell to Mr. Lee Kinnebrew's office—he knew Mr. Kinnebrew and asked me if I would show him to his office. That is all I remember, I may have introduced them to other people, but I don't think it was for this particular purpose. It is not a fact that Mr. Brown told me that he was positive that plugs had been used as early as 1908 and even before that time, and that he believed that that fact could be easily established here. I didn't talk to Mr. Brown about this at all. Mr. Lyon talked to Mr. Brown and I left after the introduction. When I say they didn't want to pay the \$250, that does not apply to Mr. Brown.

Frank Van Cleave is with the V. K. S. Drilling Company. That is a drilling company, contractors. Mr. Van Cleave didn't make that remark, however. He did not say he knew anything about what was done in 1908 or the early part of 1909. He didn't come here until 1910, and therefore his entrance into the field was too late for him to have any knowledge of it.

I didn't hear anything in particular Mr. C. W. Brown stated after I introduced them, nothing that amounted to

(Testimony of James E. Ribb.)

anything. I don't remember. I stayed there just a minute or two and excused myself because I had other business.

I introduced M. O. Rife to Mr. Bell alone. I stayed and listened to the conversation that happened after the introduction. Mr. Rife is General Superintendent with the Gulf Refining Company. I have heard that the Gulf Refining Company has an arrangement or license with Mr. Halliburton or Mr. Perkins looking to a license or taking out a license under the Perkins patent in suit, but I don't know so. I don't know that Mr. Rife would be prejudiced in testifying against his company or the interest of his company; he is a pretty fair minded man. Mr. Rife was here in the latter part of 1909, and he said he was in the production end of the business at that time and he said personally he couldn't say. He had no personal knowledge of what conditions were in 1908 and 1909 regarding the processes of cementing. He didn't say so, but I don't imagine he could because he didn't come here until 1909.

Mr. Lee Kinnebrew is a contractor in this country. I didn't introduce anybody to him. Mr. Bell knew him and asked me would I take him up to see him. I heard the conversation. The first remark Mr. Kinnebrew made—Mr. Bell told him he wanted to talk to him about the early cementing, and Mr. Kinnebrew's first remark was, he said, "Well, there is no use to kid myself about this." He didn't say very much more. He did not say anything about how many wells were cemented in 1908 or the latter part of 1909 and the first three quarters of 1909. Mr. Kinnebrew was driller for me, and he done his first

(Testimony of James E. Ribb.)

cementing job for me, and he was just as green as any other fellow in the cementing business at that time. He didn't know anything about it. Mr. Kinnebrew was the only one of these four men that said he didn't want to pay this \$250 royalty. I never heard Mr. Halliburton say to Mr. Kinnebrew that it was necessary in order to defeat the Perkins patent that they had to show prior use, back two years before the date of the application. I never heard Mr. Halliburton talk to Mr. Kinnebrew, in fact. Mr. Bell did not tell Mr. Kinnebrew that. These are not the only gentlemen I knew here in the field that might have knowledge of what was done prior to the date of the application of the Perkins patent; I know several other people. Their names all appeared on the list they had. I introduced them to the men they asked me to introduce them to. They asked me if I knew of anybody that could substantiate my testimony given in Oklahoma. On their list they had Jim Clark and C. W. Brown and Hearne Harper and Walter George, and I don't remember who all, several witnesses that would testify on the other side. I did not tell them anything about Hearne Harper or any of these gentlemen. I didn't know them back of that time. The fact of the business is that I didn't know these boys until a good while later. I did not see Jim Clark and talk to him; I never talked to any of them. The only ones I talked to before testifying in this case are those I mentioned. Mr. R. O. Roy came to the Youree Hotel one night and asked me if I had testified in the suit in Oklahoma about a year ago, and I told him I had and he asked me who asked me to go up and testify, and I told him. Mr. Roy is an operator

(Testimony of James E. Ribb.)

and contractor that lives in Shreveport. He didn't talk to me about the use of the plug system before the Perkins patent. He made the remark, he said, "These fellows are coming in here and going to charge us \$250 for cementing our own wells," and he said, "I don't think we will stand for it." And that is about all he said. He didn't know and couldn't know whether the process was an old one in common use long before the date of the Perkins application, except from hearsay, because Mr. Roy came in here several years later. He didn't say to me that it was an old process and in common use long before Perkins' patent was thought of. Just about what I have said was about all the talking that was done.

ON

REDIRECT EXAMINATION

Mr. Ribb testifies:

Q Mr. Ribb, to your knowledge there has been considerable discussion among the oil men and contractors around Shreveport for the last few months, among the contractors and those engaged in cementing plug system about getting together and fighting this patent so as to avoid paying this \$250 charge, has there not?

MR. WESTALL: That is objected to as leading, simply grossly leading, and also calling for hearsay testimony, incompetent, irrelevant, immaterial, and not proper redirect examination.

MR. LYON: Let the question include whether or not that is a fact to your knowledge.

MR. WESTALL: The amendment does not change the objection. It still stands.

A I have heard several remarks of that kind.

(Testimony of James E. Ribb.)

MR. WESTALL: I move to strike out the answer of the witness as obviously based upon hearsay.

Q BY MR. L. S. LYON: State whether or not these remarks were made by parties here in this territory who are cementing wells with this system without any license under the patent in suit.

MR. WESTALL: The same objection is made, and furthermore it is objected to as assuming a fact not testified to by the witness; furthermore no foundation has been laid showing that the witness has any knowledge whatsoever of the subject.

A They were men operating in this field.

Q BY MR. L. S. LYON: These contractors in this particular territory who are interested in cementing wells with this plug method, but who have no license under the patent in suit, stick pretty close together to your knowledge, do they not?

MR. WESTALL: That is objected to as incompetent, irrelevant, immaterial, based upon hearsay, and improper method of redirect examination, and also as being indefinite as to what counsel means by sticking close together.

A Well, yes, some of them remarked that they were going to stick together.

Mr. Kinnebrew in his talk to me and Mr. Bell admitted that he didn't know anything about cementing with the plug method prior to that Gulf well I have referred to.

Q Has he given any reason for declining to testify in this case, to you?

A He stated he wasn't going to pay that \$250 if he could help it.

(Testimony of James E. Ribb.)

ON

RE CROSS EXAMINATION

Mr. Ribb testifies:

Q Now, these parties to this suit and the suits of Mr. Halliburton and Mr. Bell who are endeavoring to secure this unlawful and illegal monopoly upon a process which was known generally by everybody throughout this section of the country in this field from the year 1908, also stick pretty close together, to your knowledge, do they not?

MR. LYON: That is objected to as assuming a fact contrary to the true fact, and as assuming a fact not testified to by the witness, incompetent, irrelevant, immaterial. The Courts have three times held that the patent is valid.

A Well, they are all here for some purpose and stop at about the same hotel, and I suppose they are usually together. I don't know how well they get along together. I don't know anything about what relations there are between the Perkins people or the Halliburton people or either one or both of these parties with any other parties.

(645) (Depositions of Alpheus J. Mercer and John H. Russell, taken at Ft. Worth, Texas, on the 10th of February, 1925, received in evidence as Plaintiff's Exhibit 17, and the same are as follows:)

(Testimony of Alpheus J. Mercer.)

TESTIMONY OF ALPHEUS J. MERCER, FOR PLAINTIFF.

ALPHEUS J. MERCER,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is Alpheus J. Mercer. I reside at Arlington Heights; Fort Worth. I will be sixty-five the 14th of April. My business is oil and *has*. My first introduction in the oil business was in 1875, as a messenger in the oil exchange in Pittsburgh, Pennsylvania. From '75, the latter part of '75, until '82 I was in that same capacity as messenger and operator in the oil exchange in Oil City, Pennsylvania, and from Oil City I went to Warren, Pennsylvania, in the Cherry Grove—when the Cherry Grove excitement began in Warren County, Pennsylvania. I remained in the brokerage oil business until '84. At the beginning of '84, I went to Washington, Washington County, Pennsylvania, as a scout for the Fisher Oil Company and the Consolidated Exchange. I remained there about a year. I then went to the Lima fields in the beginning of '86 with the Standard Oil Company, leasing lands. I was engaged in that for perhaps three or four months, and then I took charge of the Solar Refining Company at Lima. I remained there only a few months, when I resigned and engaged in the producing of oil in Ohio and Indiana. In '87 I went to Columbus, Ohio, and assisted in putting gas in the city of Columbus, having charge of the field operations and also a stockholder. During the time from that, between '87 to along about '92, I was producing oil in West Virginia and Ohio and Pennsylvania. In '93, the latter part of '93, I organ-

(Testimony of Alpheus J. Mercer.)

ized the Western Natural Gas & Fuel Company in West Virginia, of which I was secretary and treasurer. In '94, the latter part of '94, I organized the Logan Natural Gas Company of Ohio, of which I was president. Then from that time on until I drifted into—that is, I had been a producer—awhile in various parts of West Virginia and Ohio, Pennsylvania and Indiana, and then I came to Illinois in 1905, and developed property as general manager for the Busch-Everett Company, and remained in Illinois until 1908, and then came to Louisiana, Shreveport, and was there with the company up until the close of 1912. I have been a leasor, field superintendent, general manager, secretary and treasurer, and president of various corporations. What little I have been doing lately I am doing independently, at home.

I was general manager of the Busch-Everett Company during the time I was with them from 1908 to 1912 in Louisiana. I had entire supervision of all the operations, including purchase of all material, payment of all bills; and in fact everything that was pertaining to the business conducted by the Busch-Everett Company. When I went to Louisiana in 1908, the Busch-Everett Company immediately began to acquire leaseholds, and the purchase of lands. The Busch-Everett Company had not operated at all in the State of Louisiana before I was sent there in 1908. There was a great deal of this property I leased for Busch-Everett Company in Caddo Parish, Bossier Parish, and the parish south of Caddo, I can't think of it—Sabine, I think, but I do not know, I am not sure. We started developments almost immediately, drilling of wells; we started one almost immediately upon my arrival

(Testimony of Alpheus J. Mercer.)

there west of Oil City, I think about a mile. As general manager I was responsible for and in charge of these drilling operations. Other than this first well about a mile west of Oil City, we drilled a dry hole down near Dixie. We drilled five dry holes in Bossier Parish, deep wells. We drilled quite a number of gas wells, I presume maybe fifteen or sixteen. They were east of Vivian, between Vivian and Hosston, most of them; I think possibly one or two were drilled south of Vivian and another about due south of Vivian; I have forgotten the name of the property, I think Huckaby. We drilled some dry holes in there that I don't remember the names of the properties on which they were drilled, and we drilled further out at Stacey's Landing. We drilled three wells there, I believe. We drilled some on a 110-acre tract that we owned in fee, some five or six wells drilled on that. I think that is about all. I have no records to fix the dates of the drilling of these various wells. I turned that all over to the company when I left them in 1912, and my memory would be bad in reference to dates covering a period of that length of time. I think the well in Oil City was the first well we drilled. Wells Nos. 1 and 2 were drilled, I think, in 1909 on the Cherry Farm. In fact there were several wells drilled between Vivian and the Jolly tract in that year, 1909. There were other wells drilled on the Jolly property after that. We must have drilled our first well on the 110-acre tract, I imagine along in 1910, the first well, I believe was drilled about 1910 on that 110-acre tract. We only drilled that one well, and then it was several months, maybe a year after that, before we commenced to complete our operations on

(Testimony of Alpheus J. Mercer.)

that tract. Busch-Everett contracted for the drilling of these wells; in the beginning all of our wells we contracted. Harper and McCann were the contractors; I think the style was McCann & Harper. I do not know that I could tell you the exact year, probably 1910 or '11, somewhere along there, that they continued as the contractors drilling the wells for Busch-Everett. We had some trouble over a well that they had drilled, and it was unsatisfactory, and Mr. McCann, he assumed certain attitudes with the company, and I finally told him that we would dispose with his services after he completed the well he was drilling there at Hosston at that time.

I have general knowledge of cementing a well. I had no experience with cementing a well other than when I went to Louisiana I saw a great crater, a blowout, that had been blowing for two years previous to my arrival, so they told me, and I made inquiry with reference to the formations, and they told me, they hadn't any lime in which to case in, anything like that, nothing but gumbo. I then suggested to McCann however that we use cement trying to create a seat to set our casing on. I had never used it myself, never had any occasion to use cement. That was a suggestion of mine, an original thought of my own so far as I know.

We cemented every well that we drilled, so far as I know, that was drilled for Busch-Everett by McCann & Harper. That was the instructions given, to cement all wells. There was no particular point in the progress of the drilling or bringing in of the well that I made a point to practice a personal observation or keep in touch with the actual facts concerning except the drilling in of the

(Testimony of Alpheus J. Mercer.)

wells. When they had been cemented and ready to drill in, I as a rule, was present, to see that the wells were properly completed. I think I saw McCann & Harper dumping the cement in one or two wells for the Busch-Everett Company. As near as I could I kept advised concerning the progress of the wells that were being drilled by McCann & Harper for Busch-Everett. I was on the train perhaps half of the time. They kept me running from St. Louis to New Orleans so that I could not give the field the attention I should have given it, but always when a well was ready to drill in I was present. There were some exceptions perhaps when I was not present.

Q At the time these wells were being drilled for Busch-Everett by McCann and Harper which you stated were cemented, did you understand and know what method was being employed to cement the wells, Mr. Mercer?

MR. WESTALL: That question is objected to as obviously calling for hearsay evidence; the witness can only testify to what he actually saw, not what he heard, what he supposed or what he surmised.

A They were using what they call siphon system. They would dump their cement into their drill stem or pipe, first placing a back pressure valve on the bottom of the drill stem and then connecting the swivel and pumping until they had decided in their own minds that the cement was back of the pipe to be cemented, that is all I know about it. They didn't have any use for any plug or barrier in connection with that type of operation. They were not used.

Q State whether or not in the cementing of a well by what is sometimes known as the plug system in which in-

(Testimony of Alpheus J. Mercer.)

stead of pumping or introducing the cement through the drill pipe you introduce the cement through the regular well casing, forcing it down by means of a plug or barrier.

MR. WESTALL: We object to that as obviously calling for hearsay evidence, not inquiring concerning the witness' actual knowledge from what he observed, but from what he knew from communications with others. The witness has already testified that he was actually present and saw them dumping in cement in only one or two wells.

A I don't know anything about the plugs other than hearsay; I never saw a well where they had used the plugs; I never saw them in operation.

Q Mr. Mercer, will you please state under what circumstances you first heard or learned of the use of such a plug method of cementing a well, according to your best recollection.

MR. WESTALL: That is objected to as obviously calling for hearsay evidence.

A The Busch-Everett Company drilled with their own tools some two or more wells on this particular 110-acre tract which they owned in fee, and in the drilling of those wells, why, it was my understanding that the plug system was used. It was reported to me in my capacity as manager. I understood that the driller we had, Jack Garrett, did not understand this siphon business, and he used the plugs; he did understand how to use plugs, and that is why he used them. It was my practice when these wells were brought in to be present at the time the well was brought in. Sometimes I was present when

No.

5527

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United States
Circuit Court of Appeals
For the Ninth Circuit.

J. M. OWEN and J. L. BALES,

Appellants,

vs.

PERKINS OIL WELL CEMENTING COMPANY,
a corporation,

Appellee.

Transcript of Record.

VOLUME 3

(Pages 993 to 1398 Inclusive.)

Upon Appeal from the United States District Court for the Southern
District of California, Central Division.

FILED

AUG 26 1929

PAUL P. O'BRIEN,
CLERK

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(Testimony of Alpheus J. Mercer.)

they were drilling out the cement in the bottom of the hole called the core. I presume I would have observed the fragments of a wooden plug drilled out from the well, if there had been any such put in in the cementing operation. I never saw any wooden plug drilled out of a Busch-Everett well during the contracting period, not during McCann's and Harper's operations.

Referring to the well that was a failure or unacceptable to the Busch-Everett Company and over which the McCann & Harper people lost the work of the Busch-Everett Company, my understanding of that well, Mr. Harper came to me and informed me that he was unable to get his casing back on bottom. They had tried to raise the casing with five lines and were unable to do so, and they took hold with seven lines after that getting two additional lines up. They got the casing up and the cement in the meantime, as I understand it, was set to such an extent that the casing would not go back on bottom. The purpose of raising the casing when they tried to raise it with five lines was to back the cement back of the pipe, after the cement had reached a point where it would circle; then they would lift the pipe up and down while they were pumping or while shoving the cement back of the pipe. I take it for granted that was after the cement had gotten to the bottom through the drill stem; I am only repeating what Harper told me.

MR. WESTALL: We move to strike out the answer as a whole on the ground that it is clearly hearsay.

THE WITNESS: Mr. Harper told me at the time and at the place, as a regular course of business of reporting to me the progress. I was in the field and he

(Testimony of Alpheus J. Mercer.)

came up and told me that they were unable to get the casing on the bottom, and I just told him that wasn't any of my business, that that was his duty, because he had contracted to finish the well on a 6-inch hole. He could not get the casing down on bottom in that well, and as a result there was salt water in the well. The cement didn't shut out the water. It was that job that resulted in McCann & Harper losing the drilling work for the Busch-Everett Company. Mr. McCann went to St. Louis to see the president of the company, because I refused to furnish him with a new string of pipe to drill another hole. He said he would drill another hole if we furnished him with new pipe. I told him we had furnished him with the pipe for that hole and that was all we would furnish. He came back from St. Louis. They told him in the meantime to come back and take the matter up with me, and I just told him his services were at an end.

I had quite a number of men in the field working with me, for Busch-Everett, during the years 1908 to 1912, when these wells were being drilled for Busch-Everett by Harper and McCann; I have forgotten the names of most of them. We had a man by the name of Rawley to begin with, from Illinois. He is now dead. Mr. Russell was with us; he came, I think, in 1910. I placed him in charge after Mr. Rawley had left. Then we had a Mr. Martin and Mr. McCamey and Mr. Doolittle, Mr. Doty and others. I can't recall all of them covering that period from the time we started until 1912, right at the close of 1912.

Q According to the best of your recollection and any information that you received at the time while you were

(Testimony of Alpheus J. Mercer.)

acting as general manager for the Busch-Everett Company in charge of the operations, the drilling of wells by McCann and Harper, were any plugs employed in the cementing of a well for Busch-Everett by McCann and Harper prior to October, 1909?

MR. WESTALL: I object to that as calling for hearsay evidence. The witness having already testified to facts showing his want of actual observation of methods in use at that time.

A None; there were none used prior to 1909.

Q State whether or not you would have known if such a plug had been used by reason of your responsibility for the drilling of the wells and your connection with the same.

MR. WESTALL: I object to that as calling for mere speculation on the part of the witness.

A It was my instructions to always keep me informed as to all that took place in the field. I think it is correct that when the plug was used by Garrett, as I have related, I was advised of that fact in accordance with my instructions. I can't give you the date when the cementing operation was performed in which plugs were used by Jack Garrett; it was probably along in 1910 or '11; I could not tell you. It was on the property known as the Busch-Everett fee 110 acres.

I have no interest whatever in the outcome of this case one way or the other.

ON

CROSS EXAMINATION

Mr. Mercer testifies:

At the present time I am just looking around for some opportunities to get hold of oil property and to develop

(Testimony of Alpheus J. Mercer.)

anything that looks reasonable. I am not connected with any oil company, and do not own any interest in any oil company at the present time. I have met Mr. Halliburton and Mr. Perkins in this case. I am not related in any way to them, and have no business connection at all with them. I could hardly tell you how they happened to get my name as a witness to testify in this case. Mr. Whitney met me in Steamboat Springs, Colorado, last July, I think it was, and told me that he would like to have my deposition, and at that time I believe I gave him an affidavit.

My final title at the time of my connection with the Busch-Everett Company was General Manager. I had a financial interest in the company at that time; it was 5% of the net profits; they were paying me a salary in addition to the 5%.

I could not say just what I was doing in January, 1912; I was on the inside of the company up to the close of 1912. I severed my connection with the Busch-Everett Company at the close of 1912, just about the very end. I could not be positive as to that date. I don't think it might have been 1913. I might be mistaken; I am quite positive it was 1912 when I severed my relations with them; I am sure it was not 1911. Prior to the organization of the Busch-Everett Company in Toledo, Ohio, that is, Mr. Everett and I were together as partners in Ohio previous to the organization of the Busch-Everett Company. In fact, I had been with Mr. Everett in the gas business in Ohio since along in '88 at the same time I was with the Columbus Gas Company. Then we separated and later on I met him again and we re-engaged

(Testimony of Alpheus J. Mercer.)

in the oil and gas line, and along in 1905, I think it was, or 1904, the latter part of 1904 or the beginning of 1905, I suggested that I go to Illinois; he agreed to it, so I went to Illinois, and had not been there long when he wired me to meet him at the Auditorium Hotel in Chicago. He then told me he would like to have Mr. Busch come in and join us, and I agreed to that right there, and Mr. Busch was taken in, and my interest was cut at that time from one-half to five per cent. The Busch-Everett Company was organized in 1905. It was a corporation. I went to work as general manager immediately upon its organization, in fact before, and was such until my relations were severed with the company.

I arrived at the base of operations near Shreveport in the fall of 1908. I wasn't in Shreveport probably more than half of the time. I was in the service of the company, running from one place to another. We secured a natural gas franchise to New Orleans that took me away some two or three weeks at a time, and then they would call me to St. Louis nearly every week or every other week, so that I was not able to give the field the attention I should have. I was on the road a good deal of the time, traveling around, rather than being right there watching the operations. I wasn't most of the time; I presume I was in Shreveport half of the time anyhow, because I had all bills to pay, paid all the salaries, bought all materials and employed all the men and everything that took place. I had charge of the office as well as the field.

I think that there were one or two of the depositions read to me yesterday that were taken in Shreveport in

(Testimony of Alpheus J. Mercer.)

this case. I think Mr. Doolittle's and Mr. Harper's, not Mr. George's. There may have been some others sketched over, but I have forgotten if there was.

Q Have you consulted any records or memorandums or letters, diaries, or anything of that kind before giving your testimony, to refresh your recollection as to dates?

A No, nothing more than reference to some of the wells that were drilled east of Vivian. Those wells were the Jolly wells, Pitts wells, and other wells that were drilled in that section. I saw copies of the logs. My recollection is no different from those logs as to the dates. I don't know who testified at Shreveport. I know a Crawford who was a contractor, but I do not know if it was J. R. Crawford. I know Walter George. In 1909 when we went in there in the beginning of the Busch-Everett operations, Walter George was one of the McCann & Harper drillers; that was in 1908 or 1909. I know Mr. W. C. Wolfe. He was contracting at that time; I know nothing about 1907, that was previous to my arrival there. I first arrived there the latter part of 1908. My connection with the Busch-Everett Company dated some years before that; I had charge of their properties from the inception. My base of operation before the latter part of 1908 was Illinois. I have no actual knowledge from my own observation of what was done down there during the year 1908. I could not tell you the month in 1908 I first went to that field near Shreveport; it was in the latter part of the year, I remember that. During the latter part of 1909 I was supervising operations of the company. I suppose I was in or near Shreveport in 1909 half of the time.

(Testimony of Alpheus J. Mercer.)

Since 1909 I have not had much experience in actually observing the cementing of wells, not outside of what we did there ourselves in Caddo Parish. Since that time I have paid no attention whatever to the cementing, in fact I might state that all of our operations along that line were left entirely with my field men, and it was their duty to see that the cement set properly and the casing was tight. Occasionally I would be in the field, and perhaps see them while they were getting ready to cement a well. I will just say preparing to cement a well, and I did see them lay cement into their drill stems as I have already stated, and make their swivel and pump their cement back of the pipe. That was the siphon system all together. The only time I ever saw the system used was in that field. I do not know the date; no, I could not tell you that. I was awfully busy—now, I could not say; I wasn't anticipating anything like this. I know one of the wells that I have in mind in particular, it was on this 110-acre tract, that I saw the cementing, on this 100-acre fee, but I don't know the number of the well; in fact I think it was a dry hole. When I said I think I saw them dumping cement in one or two wells, I had in mind in particular, as I told you, this one well on the 110-acre tract, and I think one was over on the Jolly tract. I could not tell you the number of the well on the 110-acre tract. It was southeast, the well was located southeast of No. 1 on the 110-acres. Now, the No. 1 well was located almost in the center of the 110-acre tract. McCann & Harper cemented those two wells. At the time I was present I do not remember who was there. McCann was there, or Harper was there in charge of

(Testimony of Alpheus J. Mercer.)

the well. Harper was at every well all the time that I was in the field. Whenever we were fixing a well Harper was there, always present. He was the real, practical man of the two. McCann wasn't considered practical. On those two weeks I saw them dump the cement in, make their swivel, and pump for perhaps maybe twenty or thirty minutes. They dumped the cement in their drill stem. In the Jolly well, I think that we put in in the neighborhood of 30 to 40 sacks of cement mixed with sand, about one-third sand and two-thirds cement, if I remember correctly. The same thing on the 110-acre tract well. The well on the 110 acres was 2200 feet deep—I could not give you the exact depth, but around 2200, and the Jolly well was about 1000 feet.

Q Now, the first time you remember having heard of the plug being used was the plug used by Jack Garrett, I believe you said, probably in 1910 and '11. Who told you of the use of such plug?

A Why, Mr. Russell, I believe, and Garrett himself. I visited the wells. I did not see them use the plug. I had this conversation with Jack Garrett right at the well. My recollection of one of the wells is that the cement failed to set and I, in a conversation with him, asked him how he had cemented it, and he told me he had used these plugs and that the cement was faulty and didn't set, so we lost the well through the water getting in there. It was after this happened that I discussed plugs with him, but previous to that Mr. Russell told me they would use plugs, in the cementing of those wells. I can't recall any conversation with Mr. Harper about the methods of cementing with plugs. I never knew of them

(Testimony of John H. Russell.)

using a bunch of cement sacks in a well, or a sack of shale or anything of that kind.

ON

REDIRECT EXAMINATION

Mr. Mercer testifies:

In the conduct of the affairs of the Busch-Everett Company, and the drilling of the wells for that company by McCann & Harper, I don't know that I ever had occasion to have Harper state to me what had been done on a particular well or a condition of the well, or representing as to what condition the well was in or how it had been handled, other than the well we had our trouble with where they sued us. Of course, he attempted to explain that as I have already testified to.

Q Were those statements that he made concerning what had been done on that well truthful and reliable?

MR. WESTALL: We object to that as being incompetent, irrelevant and immaterial, and not proper redirect examination.

A I didn't consider him trustworthy at all times.

MR. WESTALL: We move that the answer be stricken out as not being proper.

TESTIMONY OF JOHN H. RUSSELL, FOR PLAINTIFF.

JOHN H. RUSSELL,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is John H. Russell. I reside in Shreveport. I am fifty-eight years old. I am in the oil business, and

(Testimony of John H. Russell.)

have been in that business I would say since '83. I first started in the business in Knapp Creek, Pennsylvania, topping for my father. The next place that I went to was Lima, Ohio, in '86. I had charge of a lease there for some people, I have forgotten their names now. I went from there to Signet, working for William Fleming, and from there back to Knapp Creek; from Knapp Creek to the Panhandle of West Virginia in charge of leases for Buzzle and Johnson. I was in the Corning field, at Corning, Ohio, interested there for myself, both in production and contracting; from there to Marietta, Ohio; Marietta to Robinson, Illinois; from Illinois to Louisiana in November, 1910, for Busch-Everett. Mr. Mercer was the general manager of the Busch-Everett Company at that time. I had known him prior to that time, socially and in a business way too, in connection with the oil business. I have been in the oil business all my life; my father moved to the oil country when I was about two years old, and I have always been there except when I was going away to school. I am fifty-eight at the present time.

When I went to Louisiana in 1910 for the Busch-Everett Company, I was superintendent of the company, having charge of the field work and production and drilling too. At that time Busch-Everett was drilling wells. Harper & McCann were drilling the wells that were being drilled for Busch-Everett. I attended to getting in the derricks and new pipe on the ground, and looked after them in a general way. I didn't have anything to do with the actual drilling of them. The well was under my charge when it was brought in. I was

(Testimony of John H. Russell.)

not there at the time every well was brought in, but most of the wells I was there; that was a part of my duties to be at the wells.

I remember a well that was drilled by McCann & Harper for Busch-Everett, known as the Levy Board well, on the lake along in December to April of 1910 or '11—December 1910 to April, 1911. I am not just clear on those dates, but it was about that time. I had the derrick built on that well, got the casing on the ground, got the cement and sand, and when the casing was set I went there to see if the seat was tight, if they had a good seat. The seat was leaking water. I think the well had been cemented. The cement was there and had been used. I wasn't at the well when they put it in. I could not tell what type of cementing operation was employed in cementing that well, only by supposition. I saw the well when they run the bailed and found that the casing was not tight and the water was not shut off. The reason for that was a bad cement job. I only know what Harper told me about the way the cement job was bad.

Q What did he tell you?

MR. WESTALL: We object to that as calling for hearsay testimony.

A He did not tell me when I went there to inspect the well; he told me after that, when I found that the casing wasn't tight, then he told me why. That was probably the next day. It was told to me as a part of the information that I was entitled to receive for Busch-Everett. He said they put the cement in the hole, they attempted to raise the casing with five lines and couldn't

(Testimony of John H. Russell.)

raise it. They pulled the bail off the swivel in trying to pull it, and then they put up seven lines, and they had to get another bail for the swivel; they raised the swivel up two or three feet, and it wouldn't go back.

I am not familiar with the siphon method of cementing a well.

Q Did you know at that time or did you understand at that time what method of cementing was being employed by McCann and Harper on the Busch-Everett wells?

A Well, my impression was that they were using a siphon system.

MR. WESTALL: We move to strike out the answer as being merely speculative and clearly hearsay evidence, or clearly based on hearsay, and incompetent, irrelevant, and immaterial.

THE WITNESS: In the siphon system they run their drill stem in the hole and put their cement in through the drill stem. I had never observed the cementing of any wells by Harper & McCann for the Busch-Everett Company prior to that time, and I did not subsequently. That was the last well they drilled.

Q Did you ever receive any explanation from Mr. Harper made to you as the field superintendent for the Busch-Everett Company at that time as to how he cemented a well?

MR. WESTALL: That is objected to as incompetent, irrelevant, and immaterial, and obviously is an attempt to lay a foundation for hearsay evidence which is incompetent.

Q BY MR. LYON: I am asking you for any explanation that Mr. Harper made to you of what he was

(Testimony of John H. Russell.)

using on the wells for which you were responsible, the explanation being made as a part of the regular operations of the Busch-Everett Company and McCann & Harper, drilling contractors.

MR. WESTALL: The question or suggestion is further objected to on the ground that it assumes something not testified to by the witness, namely, that any such conversation or information came to the witness as a part of the regular report of the contractors.

A I talked to Mr. Harper in reference to cementing wells and he told me that he put his cement in and the way he determined the cement was done was by the change of the color in the returns as they came up on the outside of the casing.

I have seen the plug method of cementing a well through the regular well casing frequently. The first time I saw plugs used was on a well known as the No. 4 on the 110-acres of Busch-Everett. Two plugs were used. That was in the spring of 1911. The rig at the time belonged to the company, Busch-Everett, and Jack Garrett was the driller in charge of it. The cement was not introduced through a drill pipe. On that well we run in some drill pipe to flush the water out of the hole, put in a plug, and then put our cement in on top of that plug, and then put another plug in and dumped it down through the casing,—through the 6-inch casing.

Q I will ask you to state, in the method of cementing a well employed by McCann & Harper on the Levy Board well which the claim arose over the attempt being made to lift the casing with five lines, what was the purpose of lifting the casing at all, if you know?

(Testimony of John H. Russell.)

MR. WESTALL: That is objected to on the ground that the witness has not been qualified to testify as an expert concerning matters of this kind, and on the further ground that the question is incompetent, irrelevant and immaterial, and further that it calls for a mere surmise, conjecture, and any answer will be plainly based upon hearsay.

A To permit the cement to be forced on the outside of the casing. From the fact that as a part of the cementing operation the casing was so lifted, I would say that it was the siphon method. Using the other method the casing is fed by pump when you start your cement in.

The No. 4 well on the 110 acres was not drilled by Jack Garrett directly for the Busch-Everett Company. He was an employee of the Busch-Everett Company, running a rig. The rig belonged to Busch-Everett and he was in their employ as driller in charge of the rig. I think the reason McCann & Harper were not employed to drill that well was that Busch-Everett refused to give them any more contracts after they finished that Levy Board well there.

Harper & McCann drilled Nos. 1, 2 and 3 wells on the 110-acre tract. They were drilled in the fall and winter of 1910 and '11. I was not present when they put the cement in any of those wells. I was present when Nos. 2 and 3 were drilled out. No wooden plug was drilled out of the wells.

Q Were you ever advised during the time that you were acting as field superintendent for the Busch-Everett Company and while the wells were being drilled for Busch-Everett by McCann & Harper that McCann and

(Testimony of John H. Russell.)

Harper were employing or knew of employing a method of cementing wells by use of a plug?

MR. WESTALL: We object to that as calling for hearsay, incompetent, irrelevant, and immaterial, and also subsequent to any pertinent date in this case, relating to facts subsequent to any pertinent date.

A No.

As field superintendent for Busch-Everett Company, no reports were made to me by Mr. Harper concerning the condition of the wells that McCann & Harper were drilling and the methods that were being employed or had been employed in the drilling of the wells; the only reports we got were as to depths. I would see Mr. Harper every day and would get the depth of the wells, sometimes from him and sometimes from the driller on the well. I don't know whether he made any representations to me as to whether the casing was tight or anything like that after it had been set. He would bail the casing, and then I would go over and have the bailer run to see whether it was tight or not.

Q Did he ever make any representations to you in regard to that, whether the well was tight or not?

MR. WESTALL: We object to that as incompetent, irrelevant and immaterial.

A Why, yes, he would tell me that he had bailed the casing and that it was tight. It was always my business to go and verify those statements from Mr. Harper. I found them to be true upon verification with the exception of one instance. They had bailed the casing that night and they said they would be through sometime after midnight. Our instructions were that they allow it to

(Testimony of John H. Russell.)

set until I got there in the morning, and I saw Mr. Harper that morning before I went out, and he said the casing was tight, but when I got out there I run the bailer several times and found it was not tight, and I reported it that way to the company.

ON

CROSS EXAMINATION

Mr. Russell testifies:

I started to work for Busch-Everett Company immediately upon coming to Louisiana in November, 1910. I came there for them, for that purpose. I continued to work for them as superintendent I think about twenty months. I think it was in July of 1912 that I left.

Prior to going to Louisiana in November of 1910 I had not had any experience in cementing wells, and had never observed the job of cementing. After going there I observed a job of cementing an oil well in December, 1910. It was on No. 2, I believe, on the 110 acres. We eventually drilled six wells on the 110-acres; five were drilled there while I was with them. The first well was drilled before I ever was on the lease, so I don't know of my own knowledge when it was drilled. The second, No. 2 and No. 3 were started at the same time, and they were both drilled in in the latter part of December, 1910, I think. I am sure about the date of November, 1910, as the time I went to Louisiana.

I did not examine any records, documents or memorandums of any kind to refresh my recollection before testifying to that date. I recall dates fairly well. I probably saw the cementing operation complete during the time I was employed there from November, 1910, to

(Testimony of John H. Russell.)

July, 1912, by Busch-Everett, and I remember distinctly the plug method was used on those two wells. I didn't pay any particular attention to whether the siphon method was used during that time or not. It is not a fact to my knowledge that during the time I was there plugs were used all or practically all of the time. That was not my understanding. I don't know from actual observation what methods were used in cementing those wells during that time except the two I spoke of.

Before testifying here I did not read any testimony that was taken at Shreveport in this case, nor did I have the substance of the testimony told to me. I have heard it discussed at Shreveport in a general way last summer that they were taking this testimony and that certain ones were up there testifying. I was not connected with any company that was interested in the matter last summer.

My business at the present time is oil; I am in the producing branch of the oil business now in Shreveport. I am interested with the V. K. F. Drilling Company, that is, Van Cleve, Kroneburg and Freedman. I own some worthless stock in some small companies.

Mr. Halliburton called me up yesterday morning and asked me to come up here; he didn't state why he wanted me to come over, just told me to come over. He discussed the matter with me in a general way last summer in Shreveport. He did not ask me to testify at the time you were taking depositions at Shreveport. I think we discussed that I had been employed by the Busch-Everett Company in 1910 to 1912. He did not ask me at that time to testify as a witness. I met Mr. Halliburton for the first time last summer.

(Testimony of John H. Russell.)

I have no interest in this process of oil well cementing and the Perkins patent that is involved in this suit. I have known Mr. Perkins a good many years and am a friend of his. I have no connection or relation with him; only as a friend; no business relations. I first became acquainted with him at Knapp Creek about 1883, or in the early '80's. Knapp Creek is in Cattaraugus County, New York. I saw Mr. Perkins in Shreveport last summer, and I saw him once about three or four years ago. I did not see him during the time of my employment or at any time from November, 1910, to 1912; I never saw him down there before that time. He never was there before 1910. I did not have any business relation with Mr. Perkins. When I first got acquainted with him he was a driller and possibly a contractor.

I don't think Jack Garrett described the method of cementing with two blocks when I spoke about this No. 4 well on the 110 acres, nor did he tell me why two blocks were used. That being the first time I had ever seen blocks used, it was a novelty to me, but I did not look into the method or inquire of Jack Garrett how he happened to use that method: I was not interested to know where that block method came from or how he happened to know of it. I did not know that it was not a new method and had been used before that.

Q As a matter of fact, you did not know anything about how wells were cemented before that time, at the time Jack Garrett showed this job to you?

A Well, that is the first one that I actually came in actual contact with. The reason I was there on this job was that it was the Busch-Everett's own rig and was part

(Testimony of John H. Russell.)

of my business to be there to see that the well was properly cemented. As far as my actual knowledge went, they may have used that method for five or six years before that.

Since 1910 and 1912 when I was employed by the Busch-Everett Company, I was employed by the Standard Oil Company for two or three years, and I was with P. J. White for several years, and I was district manager for the White Oil Corporation. I went to the Standard Oil Company in 1912, and was with them, I think, to about 1915, then I went with White; I was with White and the White Oil Corporation until 1921. I had entire charge of the White business the White Oil Corporation. I didn't come in actual contact with the oil well cementing. I did some with White, but not with the White Oil Corporation; my men attended to that.

Q When you were with the Standard Oil Company did you have any actual, personal observation and experience in oil well cementing.

MR. LYON. That is objected to as immaterial and irrelevant.

A Only I would be on the wells occasionally when that was done; I didn't have anything to do with the actual work.

ON

REDIRECT EXAMINATION

Mr. Russell testifies:

The two wells I was present at the cementing of were Nos. 4 and 5 on the 110 acres. Prior to those operations I had never known of any other method of cementing a well except what I have learned concerning the siphon

(Testimony of John H. Russell.)

method employed by McCann & Harper. I didn't have any information at all or knowledge that that method of employing plugs had ever been used before it was used by Jack Garrett: that was my first and only knowledge of it.

You can observe the remains of a wooden plug at the top of the well when the well is drilled out, flushed out, following the cementing system with the plug. I had an opportunity to observe the plug at the time the well was drilled out if one had been used in the case of any wells that were cemented by McCann & Harper for Busch-Everett. I did not see it.

ON

RECROSS EXAMINATION

Mr. Russell testifies:

When I say I had an opportunity to see the drilling out of a plug after cementing, I mean I might have seen it if I had been there on those jobs of cementing. I was probably at some of the wells after cementing and during the drilling out, but not all of them. At the one I was present it is true that the plug might have drilled out without my being actually present and observing it at the time it was drilled out. Even the wells that I was at, where I observed the drilling out, there might have been a plug drilled out without my knowledge.

ON

REDIRECT EXAMINATION

Mr. Russell testifies:

I was watching these wells drilled out, but I don't think that I ever took the cuttings to observe whether there was a plug in there or what the cuttings were.

(Testimony of J. Edgar Pew.)

Q Don't you think it probable if there had been a plug there you would have observed it?

MR. WESTALL: We object to that as calling for merely speculative evidence, surmise, conjecture, and not calling for a statement of the facts within the knowledge of the witness.

A Well, I would say not without taking some of the cuttings and washing them out. I did not take any samples from any of those wells for the purpose of noting whether there was any oil in the mud or fluid or what the condition of the cement was, or any of those things; I didn't examine that at all.

Q If you rely upon the change in the returns to determine when the cement reaches the bottom of a well, as described to you by Mr. Harper, and as testified by you, what type of a cementing job are you employing? Are you employing the plug operation? In other words, do you know what the plug is used for?

A Yes; it is used to determine when your cement is on bottom, as distinguished from just trying to time the operation or watching returns.

(Deposition of J. Edgar Pew, taken at Dallas, Texas, on the 11th day of February, 1925, received in evidence as Plaintiff's Exhibit 18, and the same is as follows:)

TESTIMONY OF J. EDGAR PEW, FOR PLAINTIFF.

J. EDGAR PEW,

called on behalf of Plaintiff, being duly sworn, testifies:

My name is J. Edgar Pew. My residence is Dallas, Texas. My age is fifty-four plus. I am vice president and manager of the Sun Oil Company; I am vice president and production manager. The Sun Oil Company

(Testimony of J. Edgar Pew.)

operates in Oklahoma, Arkansas, Louisiana, Texas and other places. I have been engaged in the oil and gas business since 1886. I went *went* with the Peoples Gas Company, which was apparently the Sun Company, originally in 1886; I was with the Peoples Gas Company until 1896; went with the Sun Company in 1896, and was with them until 1913. I was off a short time in the production business for myself, then I was vice president and general manager of the Carter Oil Company in their production department until 1917, and then came back with the Sun Oil Company, and have been with them since. I am now president of the American Petroleum Institute. Ex-officio as president of the Institute, I am chairman of a committee of the Institute which is conferring with and assisting a committee of four Cabinet members appointed by President Coolidge to make a study of the petroleum situation of the world.

I can identify the four page letter you hand me, dated November 26, 1909, addressed to Mr. J. W. Clark, Office. It is a letter I wrote to Mr. Clark, who was my superintendent in the Louisiana field.

MR. WESTALL: The letter is objected to on the ground, or the alleged letter, on the ground that it is obviously a copy, a carbon copy, and that it is not signed, and while the pertinence has not yet been disclosed, it is clearly not the best evidence for any purpose; it is also objected to as incompetent, irrelevant, and immaterial, and no foundation being laid.

THE WITNESS: This is a copy and was obtained from our files in the Beaumont office. It was written by me, written probably at the Shreveport office, to Mr.

(Testimony of J. Edgar Pew.)

Clark, who was in charge of the development work in that district, of the Sun Oil Company, the Sun Company at that time; it is the Sun Oil Company now. This is an original copy from the records of the office; it is the usual copy. No copies are signed to any letters that are generally put out by any office, so far as I know; certainly not in our office. There is no other original copy or original of this letter in existence that can be produced at this time that I can find. A search was made for this letter, and this is the letter that was in our files.

MR. WESTALL: We move that all the evidence regarding the copy be stricken out as irrelevant, immaterial and incompetent, and is calling for not the best evidence. Obviously the original letter would be in the hands of Mr. Clark and no proper explanation has been made of the absence of the original.

THE WITNESS: At the time of the writing of this letter Mr. Clark was Field Superintendent of the Sun Company, and any letters written to him were company correspondence. At the time this letter was written I was Manager of the Company in this district. The letter was written on the 26th day of November, 1909. I had been up to the field in northern Louisiana, where we were just starting to operate. I had been looking into the methods of their shutting off water, and studying the methods there used by other people. I came to the conclusion that those methods were not adequate, and tried to plan something that would do the work, they were not producing the result. I wrote this letter with instructions to Clark, giving him facts on what he should do on this first well we were drilling in that district. Following

(Testimony of J. Edgar Pew.)

of the hole, and I had my engineer, whose name at the time I think was Smith, make up a sketch according to a rough sketch that I drew, and sent it up to Clark to use.

MR. WESTALL: We move to strike out the answer as being almost wholly composed of hearsay evidence, and is irrelevant, incompetent, and immaterial.

THE WITNESS: It was sometime between this date, November 26th, and the time we cemented our first well, which was about the 20th of December, that I first thought of or hit upon this plug system of cementing a well. That was in 1909.

Q I will state to you that the defendant in this case has alleged in its answer that the plug system of cementing wells was employed by the Sun Oil Company in its wells in the Beaumont and Spindle-Top development period. What can you say as to that?

MR. WESTALL: We object to that as incompetent, irrelevant, and immaterial, and not proper rebuttal testimony, there being no evidence in the record relating to any such use as Spindle Top, and also as calling for not the best evidence.

A I can say we never cemented a well with the plug system prior to the wells on the Barr lease, which were commenced during and in November, 1909, and the first one of which was cemented around the 15th to 20th of December, 1909. The plug system of cementing wells is now being employed altogether by our company where we do any cementing. I think this plug method is practically indispensable if you do a good cementing job.

Q Do you know to what extent it is being employed generally by operators in the Mid-Continent field at this time?

(Testimony of J. Edgar Pew.)

MR. WESTALL: We object to that as not proper rebuttal testimony, and as incompetent, irrelevant and immaterial, the witness has not been properly qualified to testify to such an extent of use. What do you mean by Mid-Continent field?

Q BY MR. LYON: I will state the State in which you are operating, Texas, Oklahoma, Arkansas and Louisiana.

A To the best of my knowledge it is used altogether where they do rotary drilling, and as far as I know where they have any water trouble with cable drilling; we use it in our work.

At the present time the Halliburton Company is doing our cementing. Our rules for doing this cementing, and we did all of our own cementing up until, I guess, less than a year since, was to put in two plugs. We would put in one plug on top of the fluid a little below the top of the hole, and put in our cement, whatever quantity we wanted thoroughly mixed in the mortar, and then put in the other plug on top of this cement. The bottom plug used was a plug probably about two feet long, almost the full size of the pipe at the bottom, and for about six inches long, then drawn up at the top. We used a belting gasket to make plugs practically fit the pipes in order to make as nearly tight a joint as we could. Then we had another plug on top, the top plug, which was just a straight round plug, almost fitting the pipe, with the belting gasket on the bottom of it, and also to keep from diluting the cement which we thought would occur. The plan was to pump the bottom plug down to the bottom of the hole, raising the pipe just

(Testimony of J. Edgar Pew.)

enough to allow circulation. When the bottom plug would reach the bottom of the hole the cement would go out around the pipe on account of the taper of the plug; whenever the bottom plug had reached the bottom of the hole, the cement would commence to come up around the pipe. We would continue pumping until the two plugs came together, figuring that this would leave us purer cement immediately at the bottom of the hole on the outside of the pipe, and that there would be nothing left in the pipe excepting a little cement between the two plugs, and the plugs themselves, as soon as these two plugs came together, our pump would stop on account of the gasket formation forming a relatively tight joint. That gave us notice that the plugs were together and our cement was exactly at the point where we wanted it. We would then drop our casing to the bottom, leave our hole full of fluid and close the gate on the top to prevent any circulation and leave it stand for several days to permit the cement to set.

MR. LYON: We will now offer the letter of November 26th, 1909, which has been identified by the witness, as Plaintiff's Exhibit Pew Letter to Clark, and will also request the Notary or Reporter to copy the exhibit into the record at this point.

MR. WESTALL: We object to the receipt of the letter referred to on the ground that it is not the best evidence, no proper foundation having been laid for secondary evidence. It is incompetent, irrelevant and immaterial; and in view of the connection of the defendant company and the use of the Perkins process, of which Mr. Halliburton is the licensee, it is merely a self-serving

(Testimony of J. Edgar Pew.)

declaration. And the further objection is made that the instructions contained herein were never carried out and are incomplete, inasmuch as the witness says he gave other instructions later which superceded these.

(The letter referred to is as follows:)

November 26, 1909.

Mr. J. W. Clark,

Office.

Dear Sir:—

In drilling the well, or wells, if we drill more than one at Caddo, I want to be very particular that this work is done exactly in conformity with this letter. In case there should be any reason at any time where you should expect to change from this, I want you to shut down and take up with me the situation before you make any changes in these plans.

We want to set from 400 ft. to 500 ft. of 10" and then set either 8" or 6" as we may decide to put well down to on top of gas sand. We want to set the 8" or 10" whichever it is, in cement, also the 6" or 8" in cement.

The first setting, that is, for the upper casing, we will find where we want to set the pipe, pull out, and pump not less than 25 SACKS of cement into the hole with the casing pulled up about 2 feet from the bottom. Mr. Cole will figure out for you the exact amount of displacement it will require before this cement reaches the bottom of the casing. I would arrange to pump this down through your 3" running your 3" to the bottom of the hole, packing around between 3" and 8" at top, so that you will know you are not on outside of hole, that

(Testimony of J. Edgar Pew.)

is, on outside of the outside of casing. The displacement to be figured, of course, will be the capacity of the 3" pipe per foot multiplied by length of 3" in the hole. Do this in such a way that practically all of our cement will be under your 8" and in behind it. When you have your cement in, it will be pure cement mixed with water, you having a box made to mix this in, all at one time, and run your suction in so that you can pick it all up, you will then drop your casing and leave it set for two or three days, then run down inside and drill out core that will be left inside the pipe. I want you to study this carefully and see just how this cement sets in this hole with the time you allow it. Do not allow less than three days before which time you will not do anything toward trying to drill it out.

We will then go inside of this 10" casing or 8", whichever you use, I think it will be 10" on the first hole, drill on down until we strike the gas sand or the strata just above it. My information is that we should get this at about 1050 feet. You can figure out the depths of the various wells around there, and find out just where they do get it. When you have the strata you want to set your 6" on, get ready then to set your casing in cement again. In setting in cement at this time, I want you to use not less than 25 BARRELS of cement. Have a mortar box large enough to mix all of this at one time, and mix it in a box, not in a pit, I do not want there to be any clay mixed in it. We will get the best Portland cement Mr. Cole can get at Shreveport. We will run our 6" casing into the hole to the bottom and raise it about two feet running the 3" to a

(Testimony of J. Edgar Pew.)

point about one joint from the bottom. There will be a packer on the bottom of this 3" as close to the bottom end of the 3" as you can put it, the object being not to let the 3" extend down into the core of cement that will be left in the 6". The object of the packer being not to allow the cement to come up inside of the 6" above one joint from the bottom of the 6" and thus forcing it down to the bottom of the hole and up on the outside of the 6". If to set this packer, it is required that we have some kind of an anchor, we can construct a piece of wood to go in under the packer so as to set it properly. It will leave this wood in there and we can drill it out easily, much more easily, much more so than we could a piece of pipe in the center of this cement.

My object in doing this exactly in this way is to make an absolute certainty that we have a wall of cement back of and under our 6". Of course, as soon as you have finished pumping your cement into the hole, you will then drop your 6" to the bottom and drive it a very trifle. Leave your 6" then set. Do not attempt to run in to drill out the core inside of the pipe within before ten days.

Regardless of what anyone may tell you as to the method of setting this casing in cement, as I told you personally, I want these instructions exactly carried out and done so to a mathematical correctness as to figures.

I want you to have Mr. Cole, also you figure this out, and be there while you are doing this. You will understand that there has been a lot of trouble with water up there, the presumption being the water comes from below when the gas blew in. I have a theory that as

(Testimony of J. Edgar Pew.)

soon as this gas breaks in it disturbs this cement which has not been properly set and possibly the water comes from above, at least, when we finish our well, we want to know that we have taken proper precautions and then we will be able to judge the territory better by the results.

In looking after this well, I want you to do this yourself, all the time. I want you to stay right at Vivian every day the well is drilling and be prepared to go out there and spend the day or night any time. You will use two other drillers and not do the drilling yourself, but be in a position to be present. I want to see if we cannot absolutely make a success of the very first well we drill there, and this will depend largely on you. You can keep in touch with Mr. Cole there, calling him up every night, and any supplies you need he will keep you going. Also any communication with the office or any other instructions, you might want, you can get through him.

I would like also to hear from you by letter every day.

Select good, careful men and men that will do not any talking, and let us keep our business entirely to ourselves there.

Yours truly,

General Manager.

ON

CROSS EXAMINATION

Mr. Pew testifies:

Mr. J. W. Clark, to whom that letter is addressed, is now in Shreveport. That is where he lives; I don't know where he is today. He has no connection with our company at the present time. To the best of my knowledge

(Testimony of J. Edgar Pew.)

he has been at Shreveport continuously since 1909. I do not know when he severed his relations with my company. He severed his relations with the Sun Oil Company during the period I was not with the company, but sometime between 1913 and 1917, I am not sure when he did quit; I think sometime in that time. I know he was gone before I came back; he may have gone about the time I left, I don't recall at this time. At the time this letter was written he was field superintendent of the Northern Louisiana district for our company, and at that time I was manager of the production department of the Sun Oil Company. We had done a small amount of cementing prior to November 26, 1909, by dumping the cement in the bailer; that is the only cementing I ever knew of our company doing prior to this time. I couldn't tell you how many of those jobs I was actually present at and observed. We had very little of it; we didn't have much requirement for it at the time; it was not necessary at Spindle Top or Sour Lake, Batson or Saratoga, which were the fields we had been operating in, except in exceptional cases. I couldn't say whether I saw at least one or two of those jobs actually done. I might not prior to that time have actually seen any of those operations. I have seen operations, but whether we had any or not I don't know. Prior to November 26, 1909, we didn't do much cementing, very occasionally. So that prior to that time I can't say positively that I saw even one or two jobs of cementing, actually observed them, by any company.

Q Now, in other words, your actual experience in cementing operation was very slight; you depended con-

(Testimony of J. Edgar Pew.)

cerning your knowledge upon what you heard and what you had read, isn't that correct?

A Up to that time. Up to that particular time, November 26, 1909, I have been investigating conditions at Shreveport immediately before that, but the general operations we had never had occasion to do much cementing, up to the time the operation started in the northern Louisiana field.

In my investigation just prior to November 26, 1909, I rode all over the field with Mr. Clark. We were up against a condition there that we had not experienced in any other field, and that was a lot of water with our oil; and the question was whether or not that water was coming from the same sand as the oil, or whether it was coming from the casing or whether bottom water, but we investigated it and I saw that there was no cementing jobs that were excluding that water. We undertook to secure that. I looked at wells and talked with these various people that were doing this cementing work, McCann & Harper and the other companies that were operating in there, and saw the way they were attempting this water shut off, and concluded that was wholly inadequate, and that that might be the real cause of their water trouble. I couldn't say how long that investigation lasted; it could not have been very long, because it only took us two or three weeks. It would cover altogether not exceeding that time, because we were not up there operating prior to this time longer than that. I couldn't say how many wells I examined in that two or three weeks; I could not give you an approximation of it. I had been up there all summer off and on before we

(Testimony of J. Edgar Pew.)

commenced operating, and we were taking leases up there, and we were getting along on that kind of activity and no doubt observed a lot of work at that time; but I never gave it any intensive study until we started to operate, I know, ourselves. During this two or three weeks investigation I saw the wells and saw them cement wells. My judgment is I probably called on maybe as many as ten wells in our vicinity where they were working, where McCann & Harper and Busch-Everett crews were working. I couldn't name the lease now. I don't remember any of the leases; I don't remember the name of the lease except on our own operations. They were Busch-Everett wells. I don't know that they were all Busch-Everett wells. I imagine I investigated all of the conditions around the neighborhood where we were operating, that is, where we would have big water trouble; it was known as the shallow Vivian field. I don't know that of these approximately ten wells that I saw a single one cemented, but I had talked to McCann & Harper about the way they were cemented.

MR. WESTALL: In view of the witness's last answer, we move to strike out all the testimony of the witness as obviously having been based upon hearsay and not upon his own actual observation and knowledge.

THE WITNESS: The first well which was cemented for our company in which the plug system was used, a well on which they used two plugs, on the Barr lease in the Vivian District of Louisiana, was cemented sometime between the 15th and 20th of December, or approximately that time, in 1909. I got the idea of using plugs from studying the plans under which they were cementing,

(Testimony of J. Edgar Pew.)

and it occurred to me that the use of these two plugs would overcome those objections. My conclusions on my investigation was that the water—the way they were cementing them, it could not relieve that, and my efforts were to find something that would definitely show me that the cement landed at that particular point. I figured the two plugs would do that by the method I explained to you, and that would do nothing else but that, it couldn't help but do that. It would be indicated by the fact that the first or bottom plugs was setting on the bottom of the hole just below the pipe which had been raised; that the cement was all between the two plugs, and that as soon as the bottom plug had reached the bottom of the hole the cement would have to continue circulating around the outside of the pipe; as soon as the second plug got down and met the bottom plug there would be absolutely nothing but pure cement at that point, and from that point as far up on the outside of the pipe as the quantity of cement would permit, depending on this quantity. I would know when the top plug reached the bottom plug because the top plug had a packer on it, which would not permit the pressure fluid from the pump to get on the outside of it, whenever it reached the bottom plug it would stop and stop the pump; we couldn't work the pump at all after those two plugs came together.

In 1908 I was in the same business capacity with the Sun Company. Occasionally in 1908 we were trying to cement the bottom hole by dumping cement with a bail. I can't say positively that I saw any of those operations during 1908, but I think that I have seen them several times; I was in the field in all of the operations in South

(Testimony of J. Edgar Pew.)

Texas, excepting when I was away on vacations from probably two to a dozen times each week.

In the early part of 1909 I was in the same capacity with the Sun Company; my head office was Beaumont, Texas. I was operating in Spindle Top, Sour Lake, Saratoga, Batson and Dayton. I was directly in charge of the work; I would go to the field, one or the other of the fields, as many as two or three of them every week, and in different fields, I suppose I would get in contact with or in touch with the field by actually going out there to some of them several times each week.

Q Have you any distinct recollection of ever having seen a job of cementing of any kind during the year of 1909?

A Not until this cementing was done, I mean by us.

Q By any company?

A I said I looked into the cementing work. I think I did several jobs, I can't recall definitely at this time, up in that Vivian field, northern Louisiana. I have no distinct recollection at this time how these possible several jobs were cemented, that is, from actual memory. I was advised by my men who were in charge of my work, what was going on all around, and as a result of that we took our method—took this method of handling our own cementing work. I was actually present with them at the first well we cemented on this Barr lease, and observed the complete job. That was on the Barr lease, and No. 1 Well, I think it was; I was actually present at a number of the wells; in fact, I expect I was there at forty or fifty cementing jobs, subsequent to between the 15th and 20th of December, 1909. I think that job on the Barr

(Testimony of J. Edgar Pew.)

lease was a successful job, but it did not shut the water off for the reason we discovered that the water and oil was all in the same sand in that field.

Q So that from that discovery you found that it was not the method of cementing that had been theretofore employed, but from the fact that the water and oil were mixed?

A I think we had some improvement on our wells over the others; they all immediately followed and adopted our plans. The water that had caused trouble was in the oil sand, how much of it we improved I couldn't say, but we had better results with this method of cementing than they did with the other methods that they had there. I don't think we made any special report upon this first job of cementing on the Barr lease, or made any special comment upon this new method, because I was up there two days a week every week and was in personal contact with the foreman. I thought we had made a discovery there in cementing that was worth something. Since that time we have always continued to use two plugs to cement our wells.

Q Did you ever use one plug to cement a well?

A We may have in cases where we didn't think it was required; if it was it was because our superintendent or the man in charge did not explicitly follow instructions. Frequently you get a man that think they can do something in less time or something of that kind, and that the lines laid down are not necessary in their particular case; I was not at all of our cementing jobs but there were instructions in every case to cement with two plugs.

This method of cementing with plugs occurred to me sometime between November 26th and the time we ce-

(Testimony of J. Edgar Pew.)

mented this first well, which would be about the middle of December, 1909. My theory of the cementing was that the bottom plug would keep the cement from—it is heavier than the mud and would keep it from settling through the mud and going down and being diluted. Before that time we had cemented by dumping with a bailer. We may have cemented a well by pumping cement through tubing or casing directly on top of the mud without placing any plugs, pumping it down to the bottom of the well and up outside of the casing, but I was never present at any cementing like that of ours. I don't know whether that method of cementing would be successful or not; I don't think it could be as successful as this because of the element of uncertainty. The element of uncertainty in that would arise from two reasons: In the first place, your tubing would be filled with mud and your cement is heavier than mud, and it takes some time to get from the top of that tubing to the bottom of the hole, and it would settle probably a little faster than the fluid and would be diluted, and that was always my theory; and the second was to get your cement at exactly the bottom of the hole, and stop there, which could only be done by more or less rough calculation than any other manner. In using the term "tubing" I mean any kind of inside tubing.

Q Your idea is, if you pump cement through the casing right on top of the mud, that the cement would be diluted by the mud to such an extent as to be likely to impair the job of cementing?

A It would make the result at least more uncertain and the conditions under which we cement a well in a

(Testimony of J. Edgar Pew.)

rotary country, particularly, are such that the mud that you drill with is not only on the inside, but outside of the casing. That mud is sticking to the walls there, and there is bound to be more or less dilution. Anyway, we know that cement will stand only so much dilution and leave any binding qualities in it. I wanted to get the most perfect binding I could get. Nobody knows exactly what the conditions are down there.

Q Don't you know as a matter of fact they are cementing wells in California at the present time without any plugs, pumping the cement through casings on top of the mud without any barriers or plugs of any kind with as much success as with the plug system?

MR. LYON: We object to that, that is assuming a fact not having been testified to by the witness; a misstatement of facts and not proper cross-examination and irrelevant and immaterial.

A I don't know what they are doing in California. I have not observed very closely. I have never observed that method used here to my knowledge. Neither have I seen that done here excepting probably during this period which I suggested on the first investigation. I knew that was the only method in use over at this field.

It was sometime during the last year that our company discontinued cementing its own wells and employed Halliburton. We were notified by the Halliburton people that we were infringing on a patent and I took the position that we were not. I said that the cementing by the plug system was first done by me. I told that many times to many people, and have been told—have even told it out in California in a discussion of the matter out there

(Testimony of J. Edgar Pew.)

a year ago. I had not heard that they were using any plugs for cementing, and thought I had originated this system. When I came to look into it and give the dates as to the first cementing that we had done, I found that the Halliburton patent was prior to that time. Now, we had done a lot of cementing and we did not want to be in the position of infringing and accepting the liability that we might be under, so we made an agreement to quit cementing, and I took some stock in the Halliburton process. I own a small amount of stock, about \$10,000 I think, I don't remember what it is, in the Halliburton Company. I am not very materially interested at the present time in having this Halliburton patent sustained; we haven't much stock. I hope it will be to our financial advantage, whether it will be or not, if the patent is sustained.

I could not say whether it was before the 26th day of June, 1924, when the testimony was taken at Shreveport, that this stock was taken and we employed Halliburton to cement our wells with the plug system, but I don't think we went into this thing until sometime last fall. I am sure of that. We had no license from the Halliburton people at all before this testimony was taken in June, 1924. We had ceased doing the work from the fear of liability, and for no other reason.

Q Did you have some contract or agreement with Halliburton or Perkins prior to this 26th day of June, 1924, when this testimony was taken?

A I don't remember the date, but I do know this, I contended almost up to the last that there was something wrong about this patent; I thought that my use of the patent was anticipated in their use anyway.

(Testimony of J. Edgar Pew.)

I do not own stock in this Halliburton Company individually. I do not, in the Halliburton process or in the Perkins patent. It may be in my name, I don't know whether it is or not, but I have not a dollar's interest except the Sun Oil Company; the Sun Oil Company paid for it. If it is in my name it is held in trust for the Sun Oil Company.

Q Now, isn't it a fact that during the time this testimony was taken in the latter part of June and the first part of July, 1924, requests were made of you that you permit the defendant Owen or his attorney or representative to examine the records of the Sun Oil Company at Beaumont?

A I don't remember; I don't know just what testimony you refer to.

Q I am speaking of the testimony that was taken about the Perkins Oil Well Cementing Company vs. Owen at Shreveport, beginning the 26th day of June, 1924, and which was being taken for some days, ending in the early part of July. Now, during that time isn't it a fact that I got in communication with you over the phone and your representative at Shreveport also called you up with a view of permitting our representative or a representative of Mr. Owen to examine the records of the Sun Oil Company at Beaumont?

MR. LYON: We object to that as incompetent, irrelevant, and immaterial and not proper cross-examination.

A As I remember, someone did call me up about something or other in connection with this, whether it was you or not I do not know, but if I refused to do

(Testimony of J. Edgar Pew.)

anything, and I don't remember whether I did or not, it was wholly on account of the fact that we had thoroughly gone into the matter and was satisfied that the patent antedated ours, and to go back through matters and a lot of records for fifteen or sixteen years was uncalled for, and was an imposition on our force which I didn't choose to submit to. I would not have submitted to it.

Q You remember it was explained to you in some of those conversations over the phone from Shreveport about the time we have last referred to, during the time of the taking of that testimony, that we had a witness who stated that he had used the plug system of cementing for the Sun Company at Spindle Top in 1905, and that he had made a full and complete written report of that method of cementing which was entirely successful, and that that written report was contained in the records at Beaumont; do you remember that information?

MR. LYON: We object to that as incompetent, irrelevant, and immaterial and not proper cross examination.

A I do not recall it, but I know there was not any plug system or any cementing done at Spindle Top in 1905 by the Sun Company. I don't recall what the claim made at the time was, but if it had been I would have considered it of no importance, because it didn't occur. I was directly in charge there.

Q You know from reports made by your employees at Beaumont that Mr. Bales went to Beaumont with the idea of looking at those records at that time, and that the employees were there instructed not to let him see any such records; isn't that correct?

(Testimony of J. Edgar Pew.)

MR. LYON: We make the same objection.

A I don't know that to be a fact, no, sir; if they were instructed not to dig into the records of 1905 it was wholly because of the fact that would have meant an examination of papers that nobody could have found probably in two or three weeks time. It would have been trouble that we were not under any obligations to go into, and it would not have brought anything out if it had. I know the facts. I did not look up those records of 1905 or 1906, because I knew the plug system was never used and never in any manner considered in our organization until I started it myself at this time.

Q Now, you have stated that after looking into the matter you decided that Perkins was prior to your time of invention of the plug method. What date did you think or did you decide that Perkins was entitled to as his date?

MR. LYON: That is objected to as incompetent, irrelevant, and immaterial and not proper cross-examination.

Q I call your attention to the patent, the date of the patent—

MR. LYON: The patent speaks for itself and it was applied for in October, 1909. The witness has testified that his knowledge of the plug system is not ahead of October, 1909.

MR. WESTALL: We object to counsel's statement in the record as attempting to coach the witness.

MR. LYON: That is not true. The patent speaks for itself. It is not necessary for the witness to state

(Testimony of J. Edgar Pew.)

the filing date of this patent. It is October, 1909, in evidence, completely sustained by the court.

A I have insisted all the time that I originated the two plug system; I did not know it was being used in California. When it was brought to my attention that there had been a patent applied for of the two plug system prior to the time I used it I was also told that I would have to show two years use of it prior to the time that the patent was applied for. I dropped the matter as far as trying to insist on our prior right to use it.

Q In other words, you had the impression given you by Halliburton that in order to defeat the patent you had to show that it was used two years prior to the date of application for patent?

A No, sir, that is not what I said. I said I would have to show two years prior use to the date of his patent, or his application, in order to be able to use the process or break down the patent, and my attorneys advised me to that extent. I don't know that I talked with Halliburton about it at all.

Q In other words, here is the date on the application, October 27, 1909; you were advised by your attorney that you would have to show use more than two years prior to that date?

MR. LYON: That is objected to for the same reason heretofore given.

A That was my idea and my understanding, yes, sir.

ON

REDIRECT EXAMINATION

Mr. Pew testifies:

In connection with my objection to the Perkins patent, I submitted the facts of what I had done and what evi-

(Testimony of J. Edgar Pew.)

dence I could have obtained to my attorneys for their opinion, and they advised me that in their judgment the Perkins patent was valid.

Q Do you know whether or not they investigated to see whether your recollection was correct that the plug system had not been used in Louisiana before its use on your Barr property No. 1 well?

MR. WESTALL: We object to that as calling for hearsay testimony, and as incompetent, irrelevant and immaterial.

A We had investigated the whole problem and I told them positively it had not been used.

MR. WESTALL: We move to strike out the answer as being obviously hearsay evidence and self-serving declaration.

Q Did they not independently investigate that fact also?

A They did, yes sir.

MR. WESTALL: We object to that answer and move it be stricken out as hearsay.

ON

RE CROSS EXAMINATION

Mr. Pew testifies:

Q I want to ask you this question, Mr. Pew, the records of the Sun Oil Company there at Beaumont are still in existence?

MR. LYON: We object to that, that is not proper cross-examination.

A I think those for 1905 and 1906 are, I am not sure. I will qualify that in this way, of course some of our records are in existence, but whether or not the records

(Testimony of Arthur M. Stacy.)

of intervals and correspondence and records of field reports are in existence that long, I cannot say.

Q Would it really require very much work or time to find the records of the different wells at Spindle Top during say 1904, 1905 and 1906?

MR. LYON: We make the same objections.

A I couldn't say how long a time it would take, but I know it would take an awful lot of work. We have been doing a lot of work since 1905, and I would not undertake to do it for anybody unless I had to. I think it would take two or three weeks, to get that kind of a report, on account of the filing systems we had at those times, and I really doubt if those reports are still in existence. I don't know whether they are not. I have never made an examination, nor caused anybody else to do so back there.

(646) (Deposition of Arthur M. Stacy, taken at Houston, Texas, on the 13th day of February, 1925, received as Plaintiff's Exhibit 19, and is as follows:)

TESTIMONY OF ARTHUR M. STACY, FOR PLAINTIFF.

ARTHUR M. STACY,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is Arthur M. Stacy. I am 50 years old. At the present time I reside at San Pedro, Mexico. I am in the business of drilling water wells at this time. I have had experience in drilling oil wells. My first experience in that was in 1905 at Oil City, Louisiana. I was engaged in drilling oil wells in Louisiana from 1905 to 1916,

(Testimony of Arthur M. Stacy.)

and I worked three months in 1920 for the Texas Oil Company on Pine Island. My first work in drilling oil wells in Louisiana was on the Gilbert lease; Gilbert No. 2, in 1905. That lease is just a mile and a half south of Oil City. I was employed by M. P. Cullinan, of Laredo, Texas, on that well. He is not the Cullinan who organized the Texas Company; that was his brother, "Doc." I was engaged in drilling that well right around two months, and then went to work for J. W. Jolly on the pipe line between Oil City and Shreveport, and was in that work right around three months. Then I went to work for the Texas Oil Company on Pine Island, and was there about two months. Pine Island is in Louisiana, near Oil City, about a mile and a half from Oil City. After I finished that well I went back to work for the Caddo Gas & Oil Company. I was time keeper and gager for them; they had some production on Pine Island. I worked for them about, I guess, well, it is a hard matter for a man to think that far back—a little over a year. Then I went to work for the Higgins Oil & Fuel Company roughnecking, and later on got a drilling rig. By "roughnecking" I mean working on a drilling crew, but not in the capacity of a driller. I was not a driller then. I got a rig later on.

I know the drilling firm of Harper & McCann. I worked for them in 1907, in the spring of 1907, on a well at Moringsport, about three miles from Oil City, this side. That was after I worked with Higgins. I left Harper & McCann when the well blew out at Moringsport. We had 600 feet of 8-inch casing set in that well; it was set in gumbo. We poured cement on the outside of the casing

(Testimony of Arthur M. Stacy.)

after the well blew out. That was the only method employed at that time.

I believe, as well as I can remember, I went to work for the Gulf as time keeper and gager in May 1908. I worked for them up from May, 1908 to I believe it was in February, 1909, and then I run a drilling rig for the Gulf. After I quit gaging I went to running a rig for them; in May, 1908, until February, 1909, I got a drilling rig with them. I mean I gaged for them from May, 1908, to February, 1909, and then got a drilling rig. I was made a driller for the Gulf Refining Company in the Caddo field in Northern Louisiana. I was a driller for them there from February, 1909, to the 6th day of January, 1912. During that time for the Gulf I drilled Ferry Lake 5, 7 and 9. They were right around on the edge, on the north side of the Lake at Moringsport. I believe Ferry Lake No. 5 was drilled in March, or the latter part of February, I could not say positively, in 1909. We set the casing on that well in gumbo. The well was not cemented. There was no well cemented in the field at that time. The result of that was we had salt water. We could not get any seat and pulled the casing in two. In other words, we could not shut the water off. None of the other wells that I worked on for the Gulf Company in 1909 and 1910 were cemented.

Harper & McCann used the siphoning method in Vivian in 1908 and 1909; Jack Garrett used the first plug I ever heard of being used in that field, in December, 1911, on the Jolly well, for Busch-Everett. Harper & McCann were drilling wells for Busch-Everett in 1908, 1909 and

(Testimony of Arthur M. Stacy.)

1910. They did not use plugs in the Busch-Everett drilling; only used the siphon system.

The first well I cemented with the plug was Ferry Lake 16 for the Gulf Company, along about the 23rd or 24th of December, 1911. Prior to that time the Gulf Refining Company had not been employing a plug that I know of. I would have known whether they had or not, because I was in the field all the time.

Q Under what circumstances did you learn of the cementing of the Ferry Lake well that you have referred to, with the plugs?

A Jack Garrett told me himself how he done it; he told me there was a new system called the California system.

MR. WESTALL: We move to strike out the answer, because it is obviously based entirely upon hearsay.

Q When did he tell you that?

MR. WESTALL: We object to the question as incompetent, irrelevant and immaterial, and obviously calling for further hearsay evidence, and any answer would be hearsay evidence.

A Three or four days after he cemented it, I was down at Oil City.

MR. WESTALL: And we move to strike out the answer.

Q Was Jack Garrett the only one that referred to this plug method of cementing as the California method?

MR. WESTALL: We urge the same objection as heretofore. The question is obviously calling for hearsay evidence, and we move to strike out any answer that the witness might give in response thereto.

(Testimony of Arthur M. Stacy.)

A It was known as the California method, is all I know about it. He said it was a new system in that field.

Q Prior to that time had you ever heard of any one using a plug in cementing a well?

A No, sir.

MR. WESTALL: We move to strike out the question and the answer for the reasons heretofore stated.

Q To what extent, if any, was that method adopted in the northern Louisiana field after it was used by Jack Garrett on the well you have referred to?

MR. WESTALL: We object to that; it would be incompetent, irrelevant and immaterial, and not proper rebuttal testimony, and too late in point of time to have any pertinence to any issue in the case.

A Everybody began to work to use it, after they found it a success, all the big companies, Standard, Texas Company—all the big companies.

Q Had any of them used it prior to that time?

A No, sir.

MR. WESTALL: We object to the testimony as being hearsay, and move to strike it out.

Q Would you have known of that method being used by Harper & McCann prior to this well you refer to?

A Yes, sir.

MR. WESTALL: We object to the question; it asks for a mere guess, surmise and speculation on the part of the—witness, and move that the question and answer be stricken out.

THE WITNESS: I would have known because Mr. Leroy Smith had me employed to give him the dope where the casing was set and how fitted up. He was with the

(Testimony of Arthur M. Stacy.)

Benedum & Trees Oil Company, of Robinson, Illinois. I wrote Mr. Smith a letter almost every day, giving him the information on each field, how deep the wells were, the formation and other information. I would report to him when the wells were completed, when the casing was set, and I made it a point to keep him advised on that.

Q Did you know how McCann & Harper were cementing their wells prior to that time?

A Yes.

MR. WESTALL: We object to the testimony as hearsay.

THE WITNESS: They were siphoning in. They were not using the plug system. Jack Garrett used the first plug ever used up there. I knew Hearne Harper personally. I worked for him a good while. I kept track of what he was doing in 1908, 1909 and 1910; I had to report to Mr. Smith.

In the northern Louisiana fields in 1908, 1909 and 1910, most all the wells when you brought in the wells would probably flow four or five hours and then go to water. When I started in in that field in 1905 none of the wells were producing oil. There were two gas wells; the Producers were running a rig and the American Well & Prospecting Company—four wells being drilled; just those in the field; one dry gas well, two blow outs, one dry gas blow out.

Q Did you ever talk to Hern Harper as to how he was cementing wells in 1908, 1909 and 1910?

A Yes, sir. I saw him nearly every day.

MR. WESTALL: We object to the testimony as hearsay, and incompetent, irrelevant and immaterial.

(Testimony of Arthur M. Stacy.)

A He told me he was siphoning.

Q Did he mention in any way using a plug at any time?

MR. WESTALL: We object as irrelevant and immaterial and incompetent, and calling for hearsay testimony.

A No, sir.

Q How long after Jack Garrett cemented the well to which you refer as being the first plug cementing job was that method known as the California method, and to what extent was it known as the California method in that field?

MR. WESTALL: We object; incompetent, irrelevant and immaterial, and too late in point of time, and calling for hearsay evidence.

A Well, everybody used it, you know, after Jack cemented the first well that way and it was a success. Jack Garrett started it; I don't know where he got the name of California method at all. It was referred to by others in the field as the California system.

I was well acquainted with Hern Harper; I worked for him.

Q What can you state as to his veracity, and what dependence can be put upon his word?

MR. WESTALL: We object; it is totally incompetent, irrelevant and immaterial.

A Well, I always thought he was about as big a liar as I ever saw.

MR. WESTALL: We move to strike out the answer.

A I worked for him and he still owes me \$75 yet he has not paid.

(Testimony of Arthur M. Stacy.)

MR. WESTALL: We move to strike out that answer.

A I do not believe I can trust him; I would not believe him at all, because a man who would not pay his honest debts I have no use for.

Q Well, other than his paying that debt, what do you know about him?

MR. WESTALL: We object to the testimony.

A Everybody else knows what sort of a man he is; he won't tell the truth if he can get around it.

I have been familiar with the use of the plug system of cementing wells since I have been down in Miranda City, Texas.

Q What value would you say that system of cementing wells is to the oil drilling industry?

MR. WESTALL: Objected to as being irrelevant and immaterial and as calling for an opinion of the witness, and the further reason that the witness has not been qualified.

THE WITNESS: I have been drilling wells and in the well drilling business ever since 1911, and have been familiar with the use of the plug system, and I think it is one of the best inventions ever made. We could not get along without the plugs hardly; nearly impossible when you have lots of salt water.

The siphon method in use in 1908, 1909 and 1910 was never a success, because you never knew where your cement was and how your cement would be up in the casing.

I knew J. R. Crawford, sometimes called Slim Crawford, in 1908, 1909 and 1910. He run a rig for Billy

(Testimony of Arthur M. Stacy.)

Wolfe; roughnecked with him fifteen days. I was in touch with him these years; in the field all the time.

Q Do you know whether he ever used a plug in cementing a well prior to Jack Garrett's using one in 1911?

A No, sir.

MR. WESTALL: We object to the question and answer; calls for hearsay testimony, and move to strike it out.

A He did not use any. Jack Garrett used the first plug ever used up there.

I knew Walter George. I met him first when I went to work for M. P. Carpenter; he was a driller. He had a rig up in 1911, and I know how he finished his wells. He did not use any plug prior to Jack Garrett's using a plug in 1911.

MR. WESTALL: We object to the testimony; it is hearsay, and the witness has not shown himself qualified to testify to what Walter George may have done; we move to strike out the testimony.

I knew W. C. Wolfe—Billy Wolfe. Me and him worked together for Harper & McCann at that well. I knew him after that; we run a rig, contracting for Caddo Gas & Oil Company.

Q Do you know how he completed his wells or set his casing during the years up to Jack Garrett using the plug method?

A Yes, sir.

MR. WESTALL: We object; evidence called for would be hearsay evidence, the witness not having shown

(Testimony of Arthur M. Stacy.)

himself qualified to testify as to the facts inquired about, and we move to strike out the question and answer.

Q Did he use any plug in cementing a well prior to Jack Garrett's using the plug method in 1911?

A No, sir.

MR. WESTALL: Same objection, and same motion repeated.

THE WITNESS: Everybody set casing then in gumbo, you know, except for the siphon; Harper used the siphon system at Vivian in making those gas wells.

My work in those fields was of such a character and my acquaintanceship and meetings with those men I have named of such a character and nature that I would have learned or known of the cement method of plugging wells if it had been in use in 1908 and 1909 and 1910, because I was writing Mr. Smith every day, and I was talking to those various people, and met and talked about every well, how the casing was set and how completed, and I reported to Mr. Smith of Robinson, Illinois. The Benedum & Trees Company that I refer to sold their property in 1909 to the Standard Oil Company of Louisiana.

ON

CROSS EXAMINATION

Mr. Stacy testifies:

I did not hear of this suit of the Perkins Oil Well Cementing Company against J. N. Owen until last November. I met Mr. Richmond at Miranda, Texas; M. P. Cullinan sent me out there to see him. That was Mr. Henry Richmond, one of the attorneys from Los Angeles, associated with Mr. Lyon. Mr. Cullinan is president of the Border Gas Company of Laredo. Mr.

(Testimony of Arthur M. Stacy.)

Cullinan did not give Mr. Richmond a letter to present to me; he just told him where I was at, and where working, that I could give him the information that he wanted. I saw Mr. Richmond the 7th day of November, 1924. Mr. Richmond did not tell me about the testimony of Herne Harper and Walter George and Wolfe and Crawford that had been taken at Shreveport; just taken my testimony before a notary public. I made him an affidavit. He told me he might want to take my deposition again in a few months, and I had a letter from him in December, and he said probably it would be in February when he would want to take my deposition.

I cannot tell you the Spanish name of whom I am working for at the present time; I will show it to you. (Witness shows memorandum bearing name: *Compania Perforadora, Nuevo Leon, Sa, Monterey, Mexico.*)

In 1910 I was working for the Gulf. I worked for them from February, 1909, through 1910. I have some records from which I refresh my recollection about dates,—time books in my suitcase in San Pedro, which I look at every once in a while. That is where I have refreshed my memory as to these dates. The time book shows the time I went to work for the Gulf until I quit, and the different men I worked for, and the logs of my wells, and the names of the Ferry Lake wells I worked on. I did not bring that book along with me; I did not have any idea I would need it, but I can send it to you if you want it. I did not tell Mr. Richmond I had such a book. He did not ask me if I had any records of any kind whereby I could fix those dates.

I was at Miranda City at the time I gave this affidavit. That is this side of Laredo, about 45 miles. I did not

(Testimony of Arthur M. Stacy.)

have the book with me at that time. It was in my suitcase. I did not have it with me; it was in my suitcase. I did not make a copy of any entries from that book before I came up here to testify. That covers from February, 1909, to 1910. I have the record book from the Higgins Oil & Fuel Company also, covering I believe 1908 until along in May, until June. I also have a record book for the Coastal Oil Company. I worked for them in 1914. I have no others. The drillers always keep the time and the log of the well and they furnish their own books. I have those original books in my suit case, and the Higgins and the Gulf time books.

My first experience in drilling oil wells was in 1905 with N. P. Carpenter, roughnecking on the floor and helper on the rig. I continued as roughneck up until I got a rig with the Gulf in February, 1909. During that time I gaged for the Gulf Company in the Mid-coast oil field and kept time for them. I worked for the Gulf for several months up until February, 1909, as gager, and time keeper, from February, 1909, up until 1910. I believe I can give you the name of very near every well I worked on from 1905 up until 1910. Gilbert 1 was the first well, and Texas Oil Company, that was when I was with Carpenter; then I worked for the Texas Oil Company on Pine Island; don't know the number of the well; on Ferry Lake 5, Ferry Lake 7 and 9; Burr T. Curtis 2, and then when I worked for Higgins, Breathit No. 1, 2 and 3. I could not give you the exact time I worked on the first well mentioned unless I gave it out of my time book. On Gilbert 1 I was there about six days, with M. P. Carpenter. I started to work for him the 25th

(Testimony of Arthur M. Stacy.)

day of December, that is as near as I can get to it; then I worked for the Texas Oil Company on Pine Island; I don't remember the number of the well on the Browning lease. We worked on the well about sixty days; that was in 1906.

I went to work for Jolly and worked for Jolly on the pipe line, after I finished the well for the Texas Oil Company, right around three months; that was along in May, about the first of May, 1906, I went to work for Jolly, as well as I remember; then I went to work for the Caddo Gas & Fuel Company for a while, several months; then went to work for the Gulf, and went to drilling these wells in February, 1909. I gaged for the Gulf after I left the Caddo, up until 1909; then went on the Ferry Lake 5, worked three months to make a well. That was in February, 1909. Then I went to work on No. 7, I think it was in November, 1909. The next was No. 9 of the Gulf Refining Company, and I worked on it until February, 1910, and they sent me over to Burr No. 5 in Texas. I am giving just as near as I can the dates, but I can send you the time book, and give you all of it. I had no idea that you would want them at all or I would have brought it up here with me. I worked for Harper & McCann in 1907, two or three months, I don't remember just exactly how long; I have no time book of his that I worked for him, but along about the first of 1908 I went to work for the Gulf as time keeper and gager, up until February, and then took a drilling rig. During 1908 I worked for the Gulf. In 1908 I had a horse and went all over the field, gaging oil, running oil every day, all over the field, gaging and time keeping. I did not do

(Testimony of Arthur M. Stacy.)

any drilling in 1908; I did not get a rig until 1909; in 1909 I got around to the different wells; I went over the different fields that were producing oil. In February, 1909, I took a drilling rig, but I am talking about when I was gaging. In February, 1909, I was at Oil City every night; that is where the drillers and roughnecks met to talk about the different things, and where I got my information about the methods of cementing. During 1907 I saw a job of cementing prepared; Harper & McCann poured cement on the outside of the casing in Hostetter No. 1 well. I was not actually present at any other cementing job of any other well in 1907. I was not actually present on any job where cementing was being done in 1908, and the same in 1909. The only thing I knew was what Harper told me how he was cementing his wells. I did not see any in 1909 or in 1910. It was December, 1911, we cemented Ferry Lake 16, and that was the first time I observed cementing. I don't know except from what people told me how they were cementing wells in 1908 and 1909. I was writing Mr. Smith; he was paying me \$150 a month to give him the dope on the field, and I made it my business to find out about these wells, how finished, and to give an accurate description. I did this by talking to the men in Oil City; that was our headquarters, where we all congregated.

Q Don't you suppose there might have been methods of cementing being developed that they did not tell you about, but kept to themselves?

A I don't think they would. If anyone had discovered they could use a plug or sack of shale or bunch of cement sacks for the same purpose indicated, I don't think

(Testimony of Arthur M. Stacy.)

it would be likely that they would keep that information to themselves and not tell anybody else about it; there was no secret; after we commenced using the plug system everybody used it. We always dropped a cement sack on top of the plug when we were cementing. I never heard of a sack of shale or bunch of cement sacks being used before this plug that Jack Garrett used in 1911, not in that field.

I have not read any of the testimony of the witnesses who testified at Shreveport in this case, or had any of it read to me, nor have I seen the testimony or had it shown to me.

I do not know W. A. Abney, Clifton F. Davis, Wesley Jordon or A. F. Powell.

McCann & Harper in 1908 and 1909 cemented in in Vivian when drilling there; that is what Herne told me; I did not see him cement any of the wells. I did not see any of the wells cemented at all by any of the men who testified in Shreveport, in 1907, 1908 and 1909, by any of the men whose names have just been mentioned, in any of those years. The first well we cemented was Ferry Lake 16, that I know anything about. I helped do that myself; and the second well was Curtis 2; that was the first wells I knew of where we used two plugs to cement with. The first plug I ever heard of was used by Jack Garrett; he was the first man. I know because he told me so himself. I did not see him use the plug. But he told me he used two plugs of cement, and went on and told me how he done it. The first well I ever saw was Ferry Lake 16 in December, 1911. I drilled a well in on the 6th day of January, 1912—about 16,000 barrels a day.

(Testimony of Arthur M. Stacy.)

That was when the Lake froze over. We made 60 feet of hole; I stayed out there 24 hours. The lake froze over, and when the day man went on I had two joints of pipe in the hole; the well blew in and flowed all day. That was the first well we used the cement plug. The Gulf might have used them before that, but that is the first one I knew about being cemented with two plugs. The Gulf might have used it before that, but I do not believe they did, because we made Ferry Lake 5 and 9 and had trouble in Ferry Lake No. 5, had salt water. I don't believe Walter George could have used it in 1908 or the middle part of 1909. I would have known something about it, me being in the field every day. I have been by several wells on the Jolly farm that Walter George drilled; the Jolly wells. I have used the siphon method myself in Curtis, Louisiana, in 1914. I drilled a well for my cousin, and siphoned instead of using the plug, because I did not have any plugs there, and I siphoned in. I drilled a well for old man Curtis 1100 feet. In siphoning you just run the pipe down in the hole and run the mud out—taking my casing—worked it up and down, and the cement being heavier than the mud it forced the mud out through my drill hole. I run my drill stem inside of my casing, before I went to set, then mixed my cement and poured it in the hole. I took the drill stem out, and then poured the cement in. Then I work my casing up and down until the mud comes out through the holes, and the cement being heavier than the mud the cement will go to the bottom of the hole; the mud comes on out; the cement will force this mud on the outside of your casing. I never used the siphon system after that; used the plug always.

(Testimony of W. D. Hicks.)

You get better results. Now, when I was plugging that hole I had about 40 feet of cement on the outside of my casing. When you use the plug system, you know, the plugs are on the bottom, but the cement is on the outside of your casing.

I worked for Harper & McCann right around three months, between two and three months. I was roughnecking, tool dressing, for them at that time. That was in 1907. About the first of 1908 I went to work for the Gulf as time keeper and gager.

MR. WESTALL: At this time we move to strike out the entire deposition of this witness on the ground that it is obviously based on hearsay, and is not proper rebuttal of any of the prior uses attempted to be proven in the testimony taken at Shreveport; the witness has shown that he was not present at a single one of the wells, nor did he even see the type of cementing during the time about which the testimony taken at Shreveport was given.

(Depositions of W. D. Hicks John N. Blount, Roger Canfield, I. H. Pitts, A. O. Smith, Fred Stone, John Bird, G. B. Bryant, and A. G. Kelly, taken beginning Monday, September 21, 1925, at El Dorado, Arkansas, received in evidence as Plaintiff's Exhibit 20, and the same are as follows:)

TESTIMONY OF W. D. HICKS, FOR PLAINTIFF.

W. D. HICKS,

called on behalf of the Plaintiff, being duly sworn, testifies as follows:

My name is W. D. Hicks. I reside at Queen City, Texas. I am thirty-nine years old. I am an oil and gas well driller. I first worked on a well drilling crew some-

(Testimony of W. D. Hicks.)

time between the 1st of September and December of 1908, at Caddo field, Louisiana, for the American Well & Prospecting Company; I was helping on a drilling rig. I continued for them in that field from 1908 until 1909, about April, I guess, as well as I remember. During that time I was working in the Caddo field in northern Louisiana. After leaving the American Well & Prospecting Company I went to work for D. C. Richardson on Pine Island on a drilling rig as helper. Pine Island is located in Caddo Parish, across Clear Lake from Oil City. I continued working on a drilling rig in that territory for Mr. Richardson about two months. Then I went to Madill, Oklahoma, and went to work on a drilling rig for W. P. Sturms. I worked for Sturms about two months in Oklahoma and Texas across the line from Oklahoma. Then I went to work for the Hugo Ice & Light Company as a lineman, at Hugo, Oklahoma, for about two months. Then I went to work for the Pioneer Telephone & Telegraph Company at Hugo for about a month. I didn't do anything from that time on until along about November, 1910, when I returned to Oil City and went to work as helper on drilling rig for American Well & Prospecting Company. Oil City is located in Caddo Parish, between Vivian, Louisiana, and Shreveport. I worked for them about a month, I should judge, as well as I know. I worked on one well for them on that occasion. I can not identify the well any more than that it was one of the Fowler Oil Company wells. Then I went to work for the Producers Oil Company as helper on a drilling rig on Levee Board No. 2, near Harts Ferry in Caddo Parish. I was a helper on a drilling crew in Caddo field in Louisi-

(Testimony of W. D. Hicks.)

ana from February 1, 1910, until 1911, and then I got a drilling job with the Producers Oil Company and worked as driller and helper on rigs at different times up until now. The Producers Oil Company and the Gulf was about the principal operators in the Caddo field when I first went there, from 1908 up until 1910. Mr. Canfield was drilling foreman for the Gulf at the time in 1909 sometime in 1911, as well as I remember. Will Robinson—I don't know what his initials were—and C. M. Cheshire were in charge of the drilling operations of the Producers Oil Company in that field in 1910. The Producers Oil Company were operating when I went there in 1908 and they operated as the Producers Oil Company, and it was sometime in 1912 that they and the Texas Company consolidated, I reckon, and after that the operations of the Producers Company were continued under the name of the Texas Company.

While working in the Caddo field in 1908, 1909 and 1910 I lived at Oil City. In 1908 and '9 they always set casing there on all the wells I worked on in gumbo for a casing seat, and afterwards where they failed to get a seat they used different kind of packers in order to shut off salt water caused by leaking casing. None of those wells were cemented to my knowledge. I helped on lots of those wells, and it looks like if cementing had been a common thing I would have known something about it.

Q What was the custom in that field in 1909 and thereabouts among the workers and operators in the field as to discussing with each other the methods being used to set a pipe to exclude water from the wells, to your knowledge?

(Testimony of W. D. Hicks.)

MR. WESTALL: Objected to on the grounds that the witness has not been shown to be qualified to testify to any general custom, and that no general custom has been shown, and is incompetent, irrelevant, and immaterial.

A Do you want to know what the discussion was as regards to that; is that what you mean?

Q First state whether or not there were such discussions and if so what opportunity you had to participate in the discussions and what they were.

MR. WESTALL: The question is further objected to as amended on the ground that it obviously calls for hearsay evidence, and is incompetent, irrelevant and immaterial.

A Nothing more than the discussion of making packers to shut off water caused by leaking casing. In some cases in that field there was trouble had in water getting into the wells due to an improper landing of the casing or pipe in the well.

Q To what extent was that discussed among the different operators and workers in the field, to your knowledge, at that time?

MR. WESTALL: Objected to for the reasons heretofore stated, and as incompetent, irrelevant, and immaterial, and apparently attempting to lay a foundation for the introduction of purely hearsay evidence.

A Well, nothing more than the common talk and discussion among the field workers and the company officials in regard to the best way of shutting off salt water by setting casing properly.

(Testimony of W. D. Hicks.)

I am at the present time acquainted with the plug method of cementing wells. My first experience in knowing of such a method was on Harrell No. 8 located at Monterey in Caddo Parish, Louisiana. I drilled nights on that well. I don't know just exactly the dates it was cemented by the plug method; it was sometime in September though, I believe, in 1911, as well as I remember. The Producers Oil Company drilled that well. The pipe in the wells that I had worked on for that company prior to Harrell No. 8 had been set in gumbo and usually getting a seat for casing without any cement. I never heard or knew of using the plug method of cementing in 1908 or 1909.

Harrell #8 was drilled in after casing had been set and the casing seat broke after the well was bailed in and bridged it off. We pulled the liner and plugged the reduced hole below the casing seat and hung the casing on 6-inch elevators and washed out from behind the casing, made a displacement for cement, put cement inside of casing and put plug in casing on top of cement, and followed the plug with drill stem, and pushed cement and plug down with same, and let set about four hours in order to let cement start setting to extent enough to not stick drill stem so plug would not float back and pull the drill stem out of hole. The plug was pushed down by the weight of the drill stem. That is the first cementing job that I ever did or helped do in the oil fields.

I didn't know of the plug method being discussed in the northern Louisiana field in 1908 and 1909, and the reason that I give my answer to that is because I didn't know of it. I didn't discuss any method of shutting out water at

(Testimony of W. D. Hicks.)

that time except using packers. I discussed that with oil field workers in general. I never heard any suggestion of using the plug method until I used it myself.

ON

CROSS EXAMINATION

Mr. Hicks testifies:

Q Who requested you or who first requested you to give an affidavit or notified you that you would be required to give your deposition in this case on this cementing proposition at this time?

A Well, Mr. Halliburton's man is all I know except the fellows I worked in the field with. R. B. Holland is the first man that asked me what I knew about it. He is an oil and gas well worker and driller who works in this field at the present time. He has no connection with Mr. Halliburton at all that I know of. He asked me when and what year I first heard of cementing a well with the plug by pumping it down with a pump. I told him that the first well that I ever helped cement with a plug and a pump was in 1912. That was a wildcat well that was drilled near Alden Bridge in Bossier Parish, Louisiana. The Producers Oil Company owned the well at the time it was started, but during this time, as well as I remember, the Producers Oil Company and the Texas Company were consolidated.

I actually saw a packer used for shutting off water from an oil well in 1908 or '9. The first well I worked on in 1908 was Mansfield No. 1; I didn't work on any well prior to that one in 1908. It was owned by the Mansfield Oil Company and drilled by the American Well & Prospecting Company. They shut off the water in that well by

(Testimony of W. D. Hicks.)

setting the casing in gumbo and getting a casing seat. They drill down until they find a seat in good, hard, tough gumbo, and when the gumbo is sufficiently hard to make a seat a casing shoe is put on the bottom of the casing and the casing set on bottom.

I did not work on any other wells in 1908; just that one. I worked on that Mansfield No. 1 well for the American Well & Prospecting Company from sometime in September until Christmas. Luther Nell was the driller. Oscar Howard, Fred Neeley and A. Trammell also worked on that well. I know the night driller's name was White, and that's about all I do know.

I don't remember just when I first heard of this present suit in which I am testifying. The first that I ever knew of or saw done was this cementing by Mr. Halliburton at Duncan, Oklahoma, in 1921. It seems to me I first heard of this particular suit about a year ago, as well as I know now. I did not come from Queen City, Texas, here to testify. I have been in this oil field since August, 1921. I came to testify in this case from down at the Randolph Hotel. I have been around there for about two weeks. I came to the Randolph Hotel looking for work. Mr. Halliburton did not advance a cent to pay my expenses to come to the Randolph Hotel. This morning is the first that I knew I would be called to testify in this case. I was not told before that I would be called in to give my deposition. Mr. Halliburton or no one explained to me anything about the history of this litigation. I understood there had been a suit filed against the Standard Oil Company, but I didn't know to what extent. I never talked with anyone about this suit or about the use

(Testimony of W. D. Hicks.)

of the plug method since I first gave my affidavit, and I didn't discuss any of the possible interests on the other side of this suit. Mr. Halliburton didn't tell me that the Standard Oil Company had settled the suit for three million dollars and had made an agreement that if the defendants do not win they will pay \$75 for each well that is cemented. He didn't explain that if Halliburton wins this suit all cementers down in this field who want to come in under that arrangement will pay him \$75 for each job of cementing, and that the object and advantage that he has of winning this suit is that he will receive from every job of cementing in this field \$75 per well. He didn't explain to me that all cementers and all the operators in this field who want to cement their wells will have to pay him \$75 a well. He didn't tell me that many of the old cementers and contractors in Shreveport in 1908 and 1909, in fact all the contractors had testified in this case that the plug had been used in 1909, but I have heard that there has been such testimony made. I did not read any of this testimony of any of the contractors. Mr. Halliburton hasn't advanced me one cent in no way for my trouble or time, and he did not promise me employment if I testified. At the present time I am not employed.

Before testifying in this case or before giving Mr. Halliburton my affidavit I did not consult any memorandum of any kind or any records to enable me to fix the dates that I have testified about. Those dates are just from my unaided recollection. I never heard of a job of cementing by the use of a plug or a sack of shale used as an indicator until 1912.

(Testimony of W. D. Hicks.)

I am positive I first worked on a drilling crew between the first of September and December, 1908. I could not be mistaken in a few months. The reason why I know I am so positive of the dates mentioned is that I came to Oil City just before the president's election of 1908, and was at Oil City at that time.

The first well I worked on in 1909 was for the May Oil Company, from January until March. I don't know what the name of the lease was; just the May Oil Company No. 1. The well was located between Oil City and Mooringsport, Louisiana. In 1911 I worked on Lane-Levee Board Well No. 1 near Oil City, on James Bayou. I worked as a helper on that well. I was a helper most of the time from 1908 on my first well until 1911, except what little bit of work I did outside of the oil field, and that wasn't much. I believe it was December, 1910, up until January, 1911, I worked on Lane-Levee Board Well No. 1. The next well I worked on in 1911 was one of the Russell wells. I don't remember just what number it was. That was near Lane-Levee Board No. 1 near Oil City. I worked on the Russell well along in February and March, I believe it was in 1911. I also worked in 1911 on a well known as Finnegan #1 located near Oil City, along in May, June and July, 1911. I did not work on a well between the Russell and the Finnegan No. 1. I was not out of employment; I was working on them wells, moved from the Russell lease to the Finnegan. I worked on Russell 4 after leaving Finnegan #1. Russell 4 was near Oil City and near Lane-Levee Board #1. I worked on Russell #4 along in July, I believe it was, and August, as well as I remember.

(Testimony of W. D. Hicks.)

In 1909 after the May Oil Company well I worked for D. C. Richardson; I don't know the name of the well or the lease. It was in May and June, I believe, in 1909, that I worked on the Richardson well. I wasn't there when the well was completed, and don't know if they shut off the water or not. I don't know what method they used. That well was located on Pine Island, across Clear Lake from Oil City.

I worked on other wells during 1909 in Oklahoma. I went to Oklahoma in June, I believe, in 1909, and stayed there from June until December. I came back to Caddo field in December, 1909, and went to work for the American Well & Prospecting Company on one of the Fowler wells near Oil CITY, on the old Mooringsport road between Oil City and Mooringsport. They set 6-inch casing on that well and didn't get it on bottom; then they set a string of 4½-inch casing and set in gumbo and got a water shut-off. That was the American Well & Prospecting Company. The only two wells I worked on were the May Oil Company well in March, 1909, and the Fowler well in December, 1909. On the May Oil Company well they didn't use any method to get the water shut off except they set the casing in gumbo. I know positively that they did that with the May Oil Company well, and also in the Fowler well in December, 1909. That is the only way that they ever made a seat in 1908. I saw that method used on one well in 1908 of my own knowledge.

Q And how many did you actually see that method used on in 1909?

A I can't recall exactly the number of wells that I worked on.

(Testimony of W. D. Hicks.)

Q I thought you said you knew positively you worked on the May Oil Company well in the early part of 1909 and one of the Fowler wells in December, 1909.

A I also stated that I worked for D. C. Richardson in May, 1909. Those were the three wells that I worked on, namely, the May Oil Company well in the early part of the year and then in May and June, 1909, the D. C. Richardson well, and in December, 1909, the Fowler. That method is all I saw during that time on those three wells I worked on in Louisiana in 1909. I did not see any other jobs of shutting off water in 1909 than at the three wells I have mentioned.

I knew of the contracting firm of McCann & Harper. I didn't know anything of what they were doing in 1908 and '9, that is, I didn't work for them. In 1910 I was at Oil City, Louisiana, during the entire year. The first well I worked on in 1910 was for the Producers Oil Company, Levee Board #2, in January and February, I believe. Then I worked on Hunsicker, located on James Bayou in Caddo Parish near the line of the State of Texas. I also worked in 1910 on Mason No. 3 at a place known as Stacy's Landing. It must have been in June and July and August, I reckon. After that I worked on Levee Board #14, at Stacy's Landing, sometime in August and September. Then I worked on Lane-Levee Board #1 from November and December, 1910, until January, 1911.

Before testifying I have not refreshed my recollection by looking at any logs of wells or any dates of any kind, or any maps or charts or locations of wells. All my testimony is based upon my recollection of what passed during them years. I never heard of cementing by the use

(Testimony of John N. Blount.)

of a sack of shale until right lately, the last week or two, more than putting a sack of shale on top of a plug. I never heard of the use of a sack of shale in place of a plug in cementing in 1909; didn't know of any cementing at all at that time. I didn't know of the use of cement at that time, more than pouring cement on the outside of surface casing. I did not hear that method discussed in 1908. I did not hear it discussed in 1909 more than just what I used on a well or two that I helped drill. As far as I know, cement was not used in securing water shut-offs in cementing casing. 1911 and '12 was my first knowledge of any such use of cement for cementing casing to shut off water. I worked as a helper on a drilling rig from 1908 until 1911, and a little later got a job drilling from the Producers Oil Company.

When I was first asked to give my affidavit in this case I was down on the streets at the Randolph Hotel in El Dorado. Mr. Lyon, I reckon, drew up my affidavit; it was a week or two ago—ten days ago, I guess.

TESTIMONY OF JOHN N. BLOUNT, FOR PLAINTIFF.

JOHN N. BLOUNT,

called on behalf of the Plaintiff, being duly sworn, testifies:

My name is John N. Blount. I live in El Dorado. I am 43 years old. I am an oil field worker, in drilling wells. I first started work on a well drilling crew in the fall of 1907 in Pine Island near Oil City. That is in the Caddo field of northern Louisiana. I went to work for

(Testimony of John N. Blount.)

the American Well & Prospecting Company at that time. I worked there in the Caddo fields from the fall of 1907 to the spring of 1914. The first well I worked on for the American Well & Prospecting Company was drilled for D. C. Richardson Oil Company—D. C. Richardson, in the fall of 1907, in Pine Island, about four miles east of Oil City, in Caddo Parish, Louisiana. There was no attempt in the drilling of that well to land pipe to shut out water. The way they set casing there, they set the 4-inch drill stem. They set it with a bit and went in then through the drill stem and milled the bit off, and then drove the four-inch casing. No cement was used. That method didn't hold. It was a good well for about two hours, and then water broke in, and it made 90 per cent water, and they drove it again and it shut the water off for an hour or two again.

I worked for that same outfit, the American Well & Prospecting Company, the next spring then up until along in June of 1908. The second well I worked on was also a Richardson well. They set the pipe in gumbo and drove the casing to shut off the water in that well; no cement was used. It held about 24 hours after the well came in and then water broke in.

The next well was for Benedum-Trees on Pine Island, north of Oil City. That was in the summer of 1908. They set two strings of casing—set 6-inch and went in and bailed the casing dry, and it held, and then they set a string of 4½ inside of that.. They had had so much trouble there on the Island to make the casing hold that they set that string of 4½ inside the 6-inch, and it held. No cement was used. That was a producing well.

(Testimony of John N. Blount.)

The next well I worked on was for the same company, about one mile east of that. That was in the early fall of 1908. They attempted to shut out water in that well by just setting the casing in gumbo. The casing held, but they got a dry hole, the well didn't produce oil; no cement was used.

Then I went back to work for D. C. Richardson, on an offset to one of the former wells that I had drilled for him. That was along in the winter of 1908. They attempted to shut out water in that well by setting in gumbo. No cement was used. It didn't hold and the water broke in.

Then I went to work on another well for D. C. Richardson offsetting that one. That pipe was set in gumbo; no cement was used. The casing held, but they got a dry hole—no producer. That well was drilled along in the spring of 1909.

Then I moved back over on the west side of the lease and drilled another well for D. C. Richardson, in the spring of 1909. The casing was set in gumbo and it didn't hold. We drove it and it didn't hold again.

Then I went to work on another well for the same company offset north to that. That well was not cemented. The pipe was landed in gumbo. We bailed the casing dry and it held until we drilled the well in and it was a good well, I guess, for about a day and then it went to making water.

The next well I worked on for the same company about five miles north, a gas well, along in the fall of 1909. That was east of north from Oil City. The casing was set in gumbo with a rope packer on the bottom. No

(Testimony of John N. Blount.)

cement was used. The casing held and the well produced gas. That was in the fall of 1909. I continued to work on drilling crews in the northern Louisiana field from that time on until 1914. I can name some of the parties I worked for after that in 1909 and in 1910 and 1911. In the winter of 1909 I worked for the Sun Oil Company east of Vivian; that was in January, 1910; I worked for Billy Wolfe east of Vivian. That was when I worked on the Sun Oil Company well. I think that was the Barr lease. I believe Barr #1. I never heard of any wells being drilled by the Sun Company in northern Louisiana before that Barr well. I don't know that that was the first one, but that was the first one I knew of. Ollie Shockley was the day driller. Jim Clark was in charge. I don't know how they set the pipe in that well. The day crew set casing, and I was working nights, and they laid the night crew off so I don't know how they set the casing.

Then I went to work for Billy Wolfe. Fred Kyle was the driller. I don't know the name of the well. It was south of the Sun Company lease there about three miles. I don't know what lease. That must have been along in Christmas and January. I remember it was mighty cold weather. I mean January, 1910.

After that well I went to work for the Benedum-Trees Oil Company at Harts Ferry, Louisiana, in the spring of 1910, on Stiles #5 well. They set the casing in that well in gumbo. No cement was used.

Then I went to work for the same company on Stiles #11. The casing on that well was set in gumbo; no cement was used. That was along about April or May, 1910.

(Testimony of John N. Blount.)

When I went to work for the same company on—I won't be positive whether it was Jeff Hart #1 or A. Hart #1. The casing was set in gumbo. The casing didn't hold. Charley Thompson was the driller in charge.

I knew McCann & Harper when I saw them. They were all around the field there. I never did see Charley Thompson working for Harper & McCann, but it was my understanding all the time that he was an old driller for Harper & McCann prior to that time.

MR. WESTALL: We move to strike out the witness's understanding as incompetent, irrelevant, and immaterial, and plainly based on hearsay.

THE WITNESS: I guess I had known Charley Thompson at that time a year. When the casing failed to hold on that Hart well, we tried to cement it by siphoning it down through the drill stem. We did not attempt to pump the cement down the drill stem. No sacks or plugs were used. The job was no good—didn't hold.

The first well I saw cemented with plugs was for R. E. Allison in the spring of 1912 on the Stiles lease—the Standard Oil Company lease about three miles west of Vivian.

Q If the plug method of cementing had been known or used in the northern Louisiana field during the year 1909, what opportunity would you have had of learning of the same?

MR. WESTALL: Objected to as obviously a foolish question. The witness has already stated his experience in the wells he was connected with, and clearly if it was used at some other well he wasn't connected with he would not have seen it.

(Testimony of John N. Blount.)

THE WITNESS: Well, I was around with every driller and operator in the field, and if there had been any method of cementing to stop this trouble that they had with casing I would have known something about it. I had no knowledge and did not hear of the plug method of cementing in 1909. It was the first part of 1910 that I heard anything about it. That was not in connection with the Sun Company work. It was in the first part of 1910. I was working at that time for the Trees Oil Company, and I had made a trip over on Pine Island to D. C. Richardson lease. I was taking dinner over there with them, and they were discussing how to stop casing from leaking. Luther Nell, driller for the Richardson Oil Company at that time, said that he learned of some California system of cementing. He didn't see it, he had heard about it in some way. He had never tried it himself; he didn't know how to use it. In the summer of 1910 Charley Thompson tried to cement that string of casing on the Hart #1 by siphoning it down and told us that Mr. McLemore knew of some California method of cementing, but I don't know how it was done; just heard them talking.

Q After the plug method was introduced in the Louisiana fields into general use, was there any generally accepted statement or theory among you workers as to where it came from?

MR. WESTALL: Objected to as calling for mere hearsay.

A I heard it discussed as a California method lots of times, but I don't know. I heard the discussion at the time the method was introduced.

(Testimony of John N. Blount.)

ON

CROSS EXAMINATION

Mr. Blount testifies:

It was the early part of 1910 that I first heard of this California method I refer to. I was working for the Trees Oil Company on Hart #1, and had been working on that well about two months—about forty days—when I first heard of this. It must have been along in June, 1910. It was more in the middle of 1910 that I heard of it as the California method. I call that the early part of the year, along in June. I guess that's right—the middle of the year. It was along in June, I know. I heard discussion between the driller and the field method about the California method. The driller, Charley Thompson, was telling the field manager that Mr. McLemore had heard of some method in California of cementing. I don't remember whether they said plugs or not. I hadn't any idea what the California method was that they referred to. At that time all I knew was that it was some method of cementing. I don't remember where, but I had often heard the California method discussed after they had gone to cementing in 1912 and '13, that it was the California method. I heard this discussion come up on Bob Allison's rig drilling for the Standard Oil Company about three miles west of Vivian. That was in the first part of 1912, along in January.

I am not working right at the present time; figuring on going to work this afternoon if I don't stay here so long that I lose the job. I am staying down here at a rooming house. I have been here since 1921, right along all the time. Mr. Halliburton has not paid me for my time in

(Testimony of John N. Blount.)

testifying here; he has not said he would. I don't expect to receive any compensation for the time I have put in this morning in testifying. I didn't even know what I was coming up here for. There was a fellow down there in the lobby of the Randolph introduced me to Mr. Bird, and Mr. Bird told me Mr. Halliburton wanted to talk with me—well, he didn't say Mr. Halliburton either. He brought me up to this room and talked to me about the history of this cement. Mr. Bird just asked me how long I had been in the field, and he asked me would I mind giving a little testimony, and I told him no. That is all he said. This was a few days ago. I came up here to this room then and gave an affidavit.

I was a helper when I first started in the oil business. In 1907 I was a helper, and in 1908 and 1909. I have not done that kind of work ever since that time; I have been a driller several years. I became a driller in 1915, and up to that time I had been a helper and was blacksmithing a good while on a rig.

I never heard in 1908 or '9 of the use of sacks of shale in cementing, or of the use of cement to shut off water. So far as I know they didn't use cement for the purpose of shutting off water at all in 1908 and '9. The only time was along in June, 1910, I heard of that California method. I didn't know whether they used cement in that California method or not. It was discussed, that's all I know. In the discussion somebody said they used cement. I don't remember how they said they used it. I have seen
ever
the plugs used in cementing, pretty often/since 1912. I have been all over the field all that time.

(Testimony of Roger Canfield.)

1:30 o'clock p. m.

TESTIMONY OF ROGER CANFIELD, FOR PLAINTIFF.

ROGER CANFIELD,

called on behalf of the Plaintiff, duly sworn, testifies:

My name is Roger Canfield, better known as R. H. Canfield. I live at El Dorado, Arkansas, at the present time. I am forty-six years old. I have been a driller and a contractor and roughneck, all in the well drilling business. I entered the well drilling business in 1901 at Spindle Top, Beaumont, Texas. That was right about the time Spindle Top field came in. I went there immediately after it came in—after the discovery well came in. I did not go to work on a drilling crew. I worked on some steel tank grades, and I worked there about three weeks, and then I went out on a rice farm for six weeks, and the superintendent of the rice farm got me a position as fireman for the Forward Production Company at Spindle Top. I worked for those folks a month and then I went over to Orange County, Texas, and went to work for the Sabine Oil & Marketing Company as a roughneck, rigging up for the drilling of a well. When we were about rigged up, M. L. Lockwood, superintendent of the company, took me out to one side and asked me how I would like to run one tower on the well, and I explained to him that I wasn't a rotary driller, and he said he knew that but they had to make one, and he asked me if I would be willing to do the very best I could if they put me on as driller, and I agreed to do that and helped drill the well to about 1500 feet where it was abandoned. I took sick

(Testimony of Roger Canfield.)

when that well was finished and went back home to Ohio for about three months and came back to Beaumont, and met a party there, Mr. N. J. Bratcher. He took me out as night driller on a well at Stoll, Texas, and I helped drill that well, and then I went back to Spindle Top in 1901 and I went to work for Harry Decker as driller on a well at Spindle Top. I worked for him there for quite a time and later worked for Markham & Fowler. I helped drill one well there for them. They dissolved partnership and I became Fowler's partner in the well drilling contracting business. We drilled three wells at Spindle Top and then moved to Sour Lake, Texas, when that field came in. We drilled two wells in that field, and then we both moved to Batson, Texas, when that field came in. I think that was in 1904, and we dissolved partnership when we went over there, and I drilled a number of wells for the J. M. Guffey Petroleum Company. I drilled several wells for the company there by contract. Then I moved to Humble, Texas, when that field came in, and I drilled several wells for Grandberry & Smith by contract there. I also drilled some wells for Farish & Simms on the Mason lease there, and also some for Farish and the Producers Oil Company later, and then I moved to Houston, Texas, and later on in 1909 I went to the Caddo field in northern Louisiana and went to work for the Gulf Refining Company. That was in January or February, 1909. I went to work for them as a driller and worked as such for them about three months. Then they gave me charge of the drilling under H. A. Melat. I had charge of the drilling for the Gulf Company in the northern Louisiana field until about the latter part of 1912. During that time all of the Caddo

(Testimony of Roger Canfield.)

field was under my direction, all of the drilling wells that the company drilled in the Caddo field. As I remember, the Gulf was one of the largest companies operating in that field at that time. I had five rotary drilling rigs under me at that time.

I am familiar with the plug method of cementing wells. I didn't know anything about that method prior to 1909. We always drilled down to a part close to the top of the oil sand and rotated the casing and ground a seat in the rock in the Gulf coast fields that I have stated I worked in. I did not employ or know of others employing cement to set their pipe prior to 1909. I can tell you some of the wells on which I directed the drilling in the Louisiana field in 1909. I probably could point out more on the map—some of them, but there was a good many of them, and probably some of them have gotten away from me. The first well that I worked on in the Caddo field was Cook No. 1, and I worked on Norvell #2 and I worked on Nunley #1. I know I worked on the Cook first and then I worked on Nunley. You see, they used me for kind of a handy man. That was before I was in charge. I worked on Hostetter #3 also, and I think that is about the extent of my working on any particular jobs before I took charge. It was about three months after I went to work for them in January or February in 1909 that I took charge of the drilling operations of the Gulf in the northern Louisiana field.

I had charge of and directed the finishing of Cook #1, and we abandoned Norvell #2 and Christian #1 and about that time Mr. Wolfe was drilling a well for the company, a well they called Texarkana #1, between Oil

(Testimony of Roger Canfield.)

City and Caddo Lake near the Kansas City Southern Railroad, and at that time Amos McLemore was drilling a well they called Murray #1, and B. & O. Hanlon was drilling a well they called Allen #1. Those wells were all close together in the same vicinity. Bill Hammond was drilling a well they called Mason #1, all for the Gulf Company under my supervision. I can point out the locations of these wells I have named on a map of the Caddo field.

I recognize the map entitled "Caddo and Pine Island" as a map of the Caddo field to which I refer. With red pencil I mark Cook #1; I mark Christian #1; I mark Norvell #2; I mark Nunley #1; I mark Hostetter #3; I mark Murray #1; I mark the Mason well with a circle. The map is not entirely clear as to that. The Allen should be right south of the Murray and the Texarkana is not plain on this map either. The tracts are so small on this map that those wells are not named. The wells are here and numbered one, but it doesn't show the names of the tract. I mark those two wells. Plantation #1 is another well that we drilled.

These wells that I marked on this map were drilled in 1909. A great many of the wells on this map were not drilled as early as 1909. There are really only comparatively few of them drilled in 1909.

MR. LYON: The map identified by the witness is offered in evidence as Plaintiff's Exhibit Map of Caddo Field.

MR. WESTALL: We object to the receipt in evidence as the map has not been proven to be authentic and is not

(Testimony of Roger Canfield.)

the best evidence, no foundation having been laid for secondary evidence.

THE WITNESS: Cook #1 was my first experience in setting pipe. We drilled down with a 6-5/8-inch bit and tested ahead for a casing seat. We encountered a rock about a foot thick and drilled about ten feet below same, pulled out and reamed the hole down to within about five feet of the top of this rock with 7-7/8 bit, then cleaned out this small hole, and we set the casing with about a 10-foot nipple and six-inch pipe screwed into the bottom of the steel drive shoe, and used a pointed plug in the bottom of this nipple, and we ran the casing in the hole and seated this shoe on this soft formation above the rock. No cement was used.

We did not cement Hostetter #2. Both the Cook and the Hostetter well were completed in 1909. No cement was used in setting the casing in Nunley #1. That was completed in 1909. I wasn't there when the casing in Christian #1 was started in the hole, but I remember that the casing both settled and leaked. I mean that after it was set down where it was supposed to be on bottom and we drilled on below the casing that the pipe slipped on down. That was very much objectionable, because the pipe leaked and let water into the hole and excluded the oil to a certain extent. No attempt was made to cement that well. The casing in that well was set in 1909.

I remember how the casing was set in Texarkana #1. Mr. W. C. Wolfe was the contractor drilling that well under my direction. J. R. Crawford was the day driller; he is the man known as Slim Crawford. They had set the 6-inch casing and the pipe settled and both settled and

(Testimony of Roger Canfield.)

leaked. They pulled it out and reseated it, and it leaked again. Then Wolfe came to me and asked me to explain to him how we set our casing, and I explained to him in detail, and he attempted to reset his casing accordingly, but it leaked again, and he came back to me and wanted to know what was wrong. I asked him to explain to me just how he had set the pipe and he did, and I told him that he had drilled all of the soft formation from above the rock which he expected to support the casing, and that the water came through between the steel shoe and the rock since he couldn't get a perfect seat without rotating, which was impossible. When I explained to him that he might wrap this nipple with rope under the guard shoe and seat the rope on top of this rock and the rope would then act as a packing between the rock and the guard shoe which would prevent it from leaking. He did that with success. There was no attempt in connection with these repeated difficulties on that well to cement the well to exclude the water. Neither Mr. Wolfe nor Mr. Crawford suggested at any time cementing that well. Mr. Wolfe did ask me how to get a proper seat. That well was one of the first wells I looked after for the Gulf Refining Company. I would say it was about June, 1909.

The casing in Mason #1 was set in a very similar manner, without cementing. We set the casing in Murray #1 and for some reason or other we didn't use this nipple below the shoe, and that casing leaked when we bailed it, and the well blew out, and we had to lubricate and kill the well. That was in 1909. It was the second well that Amos McLemore drilled on. It was one of a group of wells that I first had charge of.

(Testimony of Roger Canfield.)

We drilled Allen #1 clear down on account of losing the bit in the hole. Then after chasing this bit to the bottom of the hole we found our casing seat and set this casing with the nipple in the bottom of the shoe, and then cleaned out the hole and set the liner without testing the casing, and then bailed the well in and it came in making approximately 700 barrels, as I remember it. None of the wells drilled for the Gulf Company in 1909 were cemented in the Louisiana fields.

In connection with my duties as the director of the drilling operations of the Gulf Company in the Louisiana field in 1909 I came in contact with the operations of the other companies and contractors engaged in drilling wells in that field to a considerable extent. At that time I knew nearly all of them, and it was common among us to discuss our troubles and failures and successes alike. The trouble the Gulf Company had as regards water breaking into the wells was the general experience of all of the other operators in the field, so far as I knew, and I knew pretty well.

Q What was the policy of the Gulf Company in 1909 under your direction, as regards ascertaining and employing the best methods available for its well drilling operations in that field?

MR. WESTALL: Objected to on the ground that the witness is not qualified to state what the policy was.

A Well, the policy was to undertake to get the very best methods of doing anything they did. In other words, they kept up to date.

I am familiar with the plug method of cementing wells. I never knew or learned of the plug method of cementing

(Testimony of Roger Canfield.)

wells being employed in the northern Louisiana field in 1909. I came in contact with these other operators and drillers in the field at that time by frequently stopping at their rig where they were drilling and working, and they frequently came to me. We accidently met and sometimes intentionally. I kept posted to the best extent I could in connection with my duties with the Gulf Company in 1909 on what others were doing in that field. I was supposed to keep up with what was going on and make the most of it.

I knew Harper & McCann in that field. The first I remember of either of them was at Batson, Texas, when I was drilling there. I saw them from time to time and discussed matters with them in 1909 in the Louisiana field. They never that I remember suggested to me cementing a well to shut out water in 1909.

Q Under what circumstances did you first learn of the plug method of cementing a well?

A We was drilling two wells in what was known as the Monterey district in the Caddo field. This was 1911, and it was wildcat territory to us. The Producers had finished Harrell #7, which was a large well, and the Gulf Company had some leases in that vicinity and we drilled two wells at about the same time. As I understood it, on account of the showing in Harrell #7 and on account of our inexperience in that territory, the company decided to set our casing about the same depth that we had previously been in the lower part of the field, and when the company decided to case, we were in soft formation of shale that I knew would not support the casing in our usual way of setting, and explained it accordingly to H. A.

(Testimony of Roger Canfield.)

Melat, and he then stated that he would have to cement that casing, and I told him that I knew nothing of cementing casing, and he advised me to see Jim Clark, and some other party, I can't recall who at this time, and learn from them all I could of their method of cementing, which I did.

Q What did you learn from Jim Clark; what did he have to say about it?

MR. WESTALL: We object to that as calling for hearsay evidence, and as incompetent, irrelevant and immaterial.

A I asked Jim Clark for the particulars in regard to the way that he had been successful in cementing casing, and he explained to me fully. I then cemented these two wells which we were drilling accordingly and they were a success also. The cementing of those two wells seemed to be of considerable interest to a good many, and there was a good many people there when we cemented those wells, who came to watch the wells cemented. My judgment would be that they were interested in how cementing was done and to learn for themselves. That method was not well known prior to then in that field.

Q From your talk with Clark and you got the instructions as to how to perform this method, did you learn whether or not that method was well known and had been used for a considerable time or whether it was something new that Clark had tried out himself?

MR. WESTALL: That is objected to as calling for hearsay evidence.

A It wasn't new to many of us, if any. Well, I mean cementing was absolutely new to me with the plug method.

(Testimony of Roger Canfield.)

As to whether it was or not to those who came to the well, I couldn't say; I imagine it was, from the interest they showed. All the operators in the field were pleased with the results of the method, and it was discussed accordingly.

Q What, if anything, did you learn as to the origin of that method of cementing at that time?

MR. WESTALL: Objected to as calling for hearsay evidence.

A I had heard it talked of as a California patent, but I never heard of anybody in that territory claiming the credit for devising it. After we had successfully performed the method on the two wells I mentioned in 1911, we adopted it as a regular thing. We didn't cement every well, but nearly all. I wouldn't say that that method was commonly known or used in that field in 1909 or '10. By that I mean personally I knew nothing of it in 1909. My first knowledge of cementing was in 1910, or along about the first of 1911.

ON

CROSS EXAMINATION

Mr. Canfield testifies:

Q After going to the Caddo field in 1909, how long did you continue to stay there?

A Well, let's see. I quit the Gulf the latter part of 1912 and went to work later on for the Heilperin Oil Company. I think it was in 1912. It was after I had quit. No, it must have been 1913. I would say it was along in the first of 1913 that I went to work for the Heilperin Oil Company, and I continued to work for them a year and a half. I had charge of both the drilling and

(Testimony of Roger Canfield.)

production for them. I wouldn't say positive what month in 1909 I went to work for the Gulf Refining Company in the Caddo field. I think it was January or February. It was cold weather and in the early part of the year. It could not have been May or June, and I am sure it wasn't 1910. I have seen some records to refresh my recollection as to these dates before testifying. For instance, I saw where those particular wells that I worked on and had charge of were drilled in 1909. I have seen a number of things and I couldn't say just where I did see those dates, but I have seen them here in the last few days. The company records will show for themselves. I referred to these various papers to freshen my memory on some of those occasions.

In 1909 I worked on Cook #1, and Nunley #1, and Hostetter #2, and Norvell No. 2. I don't remember of hearing of cementing a well and using a sack of shale as an indicator instead of a plug. I am sure I didn't hear of cementing with the plug system during 1909. I frequently heard about the siphon method for setting surface casing. The Gulf Refining Company siphoned cement into the surface casing on some wells that they drilled. I wouldn't attempt to say how many wells I actually saw that siphon system used on. We used it on quite a number of wells and a great many of them we didn't. Where we were not afraid of gas we didn't use it.

I knew McCann & Harper. I had talked to them some in 1908 and '9. I wouldn't say that I knew what they were doing because I wasn't with them all the time.

I did not read any of the testimony that has heretofore been given in this case. I live here at El Dorado

(Testimony of Roger Canfield.)

at the present time. I have been employed here and am at the present time. I met Mr. Halliburton at Shreveport about a month ago accidentally. He asked me what I knew about this cementing and I told him. He asked me what I was doing and I told him I was looking for a job. He asked me if I would work for him for a month and I told him I would. I am going to accept employment from him now; if he will keep me busy I sure won't miss it. I am being paid for my services now for a while. As I understood with our trade in the first place, he wanted my evidence and was willing to pay me a satisfactory price to be able to keep me in touch for that purpose, and he has kept his agreement. He hasn't promised to later give me employment, but if he does I am going to take it.

It evidently must have been along about the latter part of 1910 that I first heard of cementing with plugs or with a single plug. I couldn't be positive about it. I don't think there is a chance that it could have been as early as January, 1910. It wasn't as early as the latter part of 1909. I am absolutely positive about that. The first that I knew of it definitely as I can say was in 1911 when I talked to Jim Clark about it. I wouldn't say as to the early part of 1910. I don't remember of any particular discussion of it. I said that I heard of it in 1910, but I wouldn't say what time. I heard them talk about it in a general way previous to my talk with Jim Clark. I couldn't say who I heard talking about it.

(Testimony of I. H. Pitts.)

TESTIMONY OF I. H. PITTS, FOR PLAINTIFF.

I. H. PITTS,

called on behalf of the Plaintiff, being duly sworn, testifies:

My name is Isaac Henry Pitts. My home is in Oil City, Louisiana. I am thirty-seven years old. My occupation is driller. I first started in the well drilling business October 6, 1906, in the Caddo oil field, northern Louisiana. I went to work for the American Well & Prospecting Company. I worked on drilling crews in the northern Louisiana field until October 15, 1909. I worked for the American Well & Prospecting Company, Producers Oil Company, better known as the Texas Oil Company, and the Caddo Gas & Oil Company and the Blanchard Oil Company. Mr. W. C. Wolfe was the drilling superintendent for the Caddo Oil & Gas Company. That was in the early part of 1909, in the winter, on Caddo Lake well.

We set a string of 6-inch casing in that well first with a drive shoe, and it leaked. We did not cement that 6-inch. We never could get this string of casing to hold and we set a string of 4-inch, with a drive shoe and a four-inch nipple five or six feet below it. We did not cement that. The reason for setting that extra string of 4-inch was because we could not prevent the 6-inch leaking.

While I was working in that field in 1909 there was a comparatively few rigs running. I knew practically all of the operators and workers in that field at that time. I came in contact with them around at the rigs mostly, and we would meet in town at night. We all knew

(Testimony of I. H. Pitts.)

each other, and we talked about our different jobs and what we were doing, and so forth and so on.

I worked in that field continuously until October, 1909. I am familiar with the plug method of cementing wells. I had not heard of and did not know of such a method prior to my leaving that field in October, 1909; I never heard it mentioned, not the plug system. They were having a great deal of trouble more or less with the methods they were using at that time in that field to shut out water.

When I left the Caddo field in October, 1909, I went to Maricopa, California. I went to work out there for the American Well & Prospecting Company, drilling a well for the K. T. & O. I was not a driller on that well; I was working derrick on that job. I worked in the Maricopa fields until May, 1911, but I was back in Louisiana for a two weeks visit in the summer of 1910.

I met Mr. A. A. Perkins. I was drilling a well in the Maricopa district for the Lakeview Annex Oil Company in September, 1910. We set a string of 8-inch casing there at 2360 feet and Mr. Perkins cemented this well. He did that personally; he was there on the job. I watched him cement the well. I very well remember the method. He had two pumps and he had one to mix the cement with and the other one to pump it down with, and he used two plugs, and he had an 8-inch nipple about 10 feet long, I think, and he had these connections from his pumps connected into this 8-inch nipple, and in this nipple he had two plugs, and below these plugs were quick-opening devices for letting plugs loose when ready. We pumped the first plug to the bottom, and when the

(Testimony of I. H. Pitts.)

plug hit bottom we raised our casing just to clear the first plug, then we put our cement in—wait a minute, I want to be sure I am getting that right. I will reverse that; we put our cement in on top of the first plug and then when we got our cement in we turned the other plug loose and pumped until the first plug hit bottom, then we raised our casing to clear the first plug and continued to pump until the second plug hit bottom, then we let our casing on bottom. I had never heard of or known such a method being employed in the Louisiana field before I saw it performed by Mr. Perkins on that occasion. The only way I ever remember of seeing them cement in Louisiana prior to my going to California was the siphon system. They did not force the cement down the well by pumping with the siphon system that I knew in Louisiana, and they did not use any plug.

To the best of my knowledge, the plug method of cementing was developed in California.

I knew Edward Todd, who was afterwards vice president of the Standard Oil Company of Louisiana. We were in California together in 1910 at the time Mr. Perkins was cementing those wells. After Mr. Perkins cemented this well for the Lake View Annex, the following day Mr. Todd and I went to Taft together, and that is the last I seen of Mr. Todd, and I came back to Louisiana in 1911. When I returned to Louisiana in 1911 they were using the plug method here, some of them, at that time. I seen them cementing a well in the Caddo oil field for the Standard Oil Company with that method, and I talked to the driller, Mr. Ed Leach, about the plug system, they were using, and told him that that was the

(Testimony of I. H. Pitts.)

California system. No doubt on other occasions that method was referred to in the Caddo field as the California method. I can only recall from memory that one instance as that was the first well I seen cemented in Louisiana.

ON

CROSS EXAMINATION

Mr. Pitts testifies:

I don't know how many wells I worked on in 1909 in the Caddo fields. I worked on several. I went from one job to the other. I worked for the Blanchard Oil Company on a well in 1909. I quit them and went to work for the Producers Oil Company and worked with them until I went to California in 1909. In 1909 while working for the Blanchard Oil Company I worked on Blanchard Oil Company Surry No. 3 well; I don't remember just exactly the day and the month, but it was in the spring, I think of 1909. It wasn't 1910, because I was in California in 1910. I went to California October 15, 1909, and stayed until the summer of 1910, and came back to Louisiana and stayed not over two weeks, and then went back to California. I don't remember whether Surry #3 was the first well I worked on in the year 1909. I might have worked on some other well. C. O. & M. #5 for the Producers Oil Company was another well I worked on in 1909. Surry #3 was in the Caddo field. I can't exactly tell you the section, but I can tell you it was a quarter of a mile northwest of Murray's crossing. This C. O. & M. #5 was located approximately half a mile north and west of Oil City. It was an offset to the Evans farm. The Evans farm was right

(Testimony of I. H. Pitts.)

on Caddo Lake. Before I went to California in 1909 I worked on White #1 I believe, of the Producers Oil Company. After that, why, I worked on almost all the wells they had. Just went from well to well at that time doing odd jobs. White #1 was three-quarters of a mile south of Oil City, between Oil City and Mooringsport. After White #1 I worked on the Lane #2, M. C. & H. #1, Anna Graham #1, and some few others that I can't remember the names of the wells, in 1909. There were three or four others. Some of them I didn't work on until I came back from California in 1910. I worked on the Anna Graham in 1910. When I was back in 1910 it had already been brought in. When I was back in 1910 I worked on the Anna Graham and Witworth. My testimony is positive that I worked on Surry #3, C. O. & M. #5, White #1, Lane #2, and M. C. & H #1 during 1909. I was roughnecking when I worked on those different wells in 1909. As to how long I worked on a well, it all depended how long I wanted to stay or how long they would let me stay. In those days there were very few men there, and a good man could always get a job.

Q Now, did you see them attempt to shut off water at all the different wells that you mentioned as having been worked on by you in 1909?

A Well, we set casing on C. O. & M. #5 and the casing held. I worked on Surry #3 until they set the 10-inch, and after that I don't know anything about that work. I was on White #1 when they set casing. They didn't cement that well to my own certain knowledge, because the plug system at that time was not in exist-

(Testimony of I. H. Pitts.)

ence in Louisiana. I heard of the plug system some time before Mr. Perkins cemented this well that I worked on in 1910. I can't recall just who it was I heard it from at that time. I went back to California in 1910 and went to work on this Lakeview Annex well, and I heard of the cementing sometime before he cemented this Annex well.

I knew McCann & Harper. I did not know they were cementing wells as contractors in 1908 and 1909. All I know, they were all using the boots and the set shoes and the rope packers and various methods of trying to shut off this water to get a seat. I don't know just to say who was using the rope packer. I don't know whether my company used a rope packer in 1909 or not for sure, but most of the wells we set with a set shoe with a nipple below, and then after they get the casing on bottom they would go in and clean out and make two or three feet, and then bail the casing to see whether it would hold or not. I can't recall any jobs in 1909 in which the rope packer was used. There were various methods that they were using. That rope packer method was one of them. I am not sure about whether they used it then or not.

Q You have already testified that they were using that among various other methods in 1909, and you wish to correct your testimony?

A Well, I don't know whether I ever seen a rope packer used in 1909 or not, but I have seen them used, but just whether it was 1909 or not I couldn't say for sure.

The only way I ever saw the siphon system used was on surface casing, and sometimes they would pour it in

(Testimony of I. H. Pitts.)

behind the casing and get what they could there, and then sometimes they would take their hose off of the stand pipe and pour this cement in behind their casing and work the casing up and down a few feet, and in this way, the cement being heavier than the mud, the cement would work its way to the bottom of the hole, forcing mud out through the casing and mud hole. The cement was poured on the outside of the casing and worked down between the outside of the casing and the walls of the hole.

Q Did you ever hear the siphoning system mentioned in 1909 at any time that you talked it over with the other men who were in the business?

A Well, not any more than when we got ready to cement the casing we would pour the cement behind it. I don't remember how many wells I saw cemented in 1909 with this siphoning system. I have mentioned a number of wells here that I worked on, but those wells that I worked on could have had the surface casing already set when I went to work on them. I don't know whether they had it set by the siphon method or not. Some of them set it without cement and some of them used that siphon system. I don't think I ever heard of the use of a sack of shale as a plug. I am positive I never heard of the plug being used in 1909 before I went West; never heard anybody mention it that I remember of at all. I did not find them using plugs when I came back to Louisiana in 1910. I was in the Caddo fields about two weeks in 1910. During that two weeks I didn't have much opportunity to see what they were using, but if they had been using the plug system I would have known

(Testimony of A. O. Smith.)

something of it, me knowing so many of the different men and drillers at that time in the Caddo oil field.

I am here because I am working up here, out in the East field for Zoder & Hunt. They are in the oil business. I am not losing any time; I am working nights, and I come into El Dorado every afternoon for my mail, etc. No one has agreed to pay me for my services in this case. I have been reading about this suit in the papers, off and on, for a year or more, I guess, in which my testimony is being taken. I never read of one individual trial. I don't know who has testified or anything about that. All I know is that I am telling what I know about the plug system and when I first saw it. I am a driller at the present time. I am not related to MR. Halliburton in any way, nor connected in any business relations with him whatever. I have no interest in the business in which he is connected. Someone on the street told me that they was wanting affidavits and wanted to find out the old men who were working back in that time and I volunteered the information.

9:30 a. m. September 22, 1925.

TESTIMONY OF A. O. SMITH, FOR PLAINTIFF.

A. O. SMITH,

CALLED ON BEHALF OF PLAINTIFF, duly sworn,
testifies:

My name is A. O. Smith. I am fifty-eight years old. My home is in Athens, Alabama. I am living now at El Dorado, Arkansas. I am a tool dresser and blacksmith on a drilling crew. A tool dresser or blacksmith keeps

(Testimony of A. O. Smith.)

up the tools, shapens the bits, do anything of general repair work that is required. I work at the rig while the well is being drilled. I have my anvil and working tools at the rig. A tool dresser or blacksmith makes and repairs anything that can be done at a small field shop. I put my field shop right close to the boiler. I have been a tool dresser or blacksmith on a well drilling crew since 1906. I started at Oil City, Louisiana, for Howard Hughes. I worked as such in the northern Louisiana field from 1906 to 1920.

I knew the firm of Harper & McCann, drilling contractors, in that field. In 1908 I went to work for them, and I knew of them before that. To the best of my recollection, though, it was 1908. I did dressing tools and general repairs at the rigs for them. In other words, I worked as a tool dresser or blacksmith on their drilling crews. To the best of my recollection I was with them part of three years, 1908, '9 and '10. They would let me off when they finished a well until they got a contract to drill another well, but I worked on their drilling crews as a tool dresser or blacksmith in 1908, '9 and '10. I worked for them on Dawes Syndicate #1, Douglass #1, at least it was at Phil Douglass' place, Alden Bridge, Busch-Everett #1, and a well at Ivan, I don't remember the name of the well, Pete #1 at Hosston. I believe that is all I remember the names of. While working for them I worked on a well on which Billy Wolfe was a driller. It was at Oil City. That's the one I don't remember the name of. I also worked on a well on which Walter George was the driller while working as a tool dresser for Harper & McCann. That was the Dawes Syndicate well right down there at Oil City.

(Testimony of A. O. Smith.)

While working for Harper & McCann as a tool dresser I worked on a well on which Charley Thompson was the driller. I worked on that well at Ivan that I don't know the name of, and on Brussard #2. The best of my recollection is that it was #2. That Brussard well was at Oil City.

While working for Harper & McCann as a tool dresser I worked on a well on which Jack Garrett was the driller. That was the Douglass well at Dixie and the Busch-Everett well at Alden Bridge. I quit working for Harper & McCann in 1910, and went to work for Bob Allison. He was a contractor in that field. I dressed tools and general repair work for him.

I am familiar with the plug method of cementing wells. It was the year that I went to work for Bob Allison that I first learned of such a method, either 1911 or '12, I don't remember which. To the best of my recollection it was 1911. It was after I left McCann & Harper. While working for Bob Allison, sometimes I would have to make the plug in connection with cementing the wells by the plug method. That is about all I did. They bought some plugs in the machine shop and I made some. In my case it appeared to be part of the work of the tool dresser on the well in that field, after the plug method was adopted, to make the plugs to be used in the cementing job. I had it to do. They looked to me to have the plugs ready. While I was with McCann & Harper I never knew of their using a plug in cementing a well. I never made a plug for them while I was with them. I did not hear of anybody else making or using any plug. While I was working for them I know of one time they

(Testimony of A. O. Smith.)

used cement in a well; I have seen Walter George cementing. He was siphoning it in. He did not use any plugs that I know of. They was at work when I got there. I went there with Hearne Harper, but they were cementing when I got there and I remember Hearne Harper getting down in the ditch and feeling for the cement to return. I mean he felt of the fluid that was coming out at the top of the well to see whether any cement was in it. That is the way he determined when to stop pumping the cement. I don't recollect what well that was. It was east of Vivian, out between Vivian and Hosston. I can't remember the name of the well; I did not work on it, but went to it with Mr. Harper.

At that cementing job, I suppose the pump was stopped when the cement returned on the outside. They mixed sand with the cement in them days. If McCann & Harper had been using the plug method of cementing while I was working for them as a tool dresser, I think I would have known of it. They would have been sure to have made the plugs there at my shop as others did later on.

ON

CROSS EXAMINATION

Mr. Smith testifies:

I have not a very good memory for dates. To the best of my recollection I give the dates. I don't know positively that the dates which I have given are correct. I never had any notes or any memoranda or record to look up these dates that I have mentioned before testifying.

(Testimony of A. O. Smith.)

I knew Harper in 1902 at Spindle Top and that was before Harper & McCann went to contracting. To the best of my recollection it was 1908 that I was tool dresser for Harper & McCann. I think I am certain that that was the year that I went to work for them. I think it was early in the year, sometime in the spring, I went to work for them. I don't think it was in the early part of 1909; I think it was 1908. I don't think there is a possibility of my being mistaken, although I have not looked up the date. I think that it was 1908 I went to work for them.

To the best of my recollection, it was 1910 I quit working as tool dresser for Harper & McCann. I am pretty sure it was 1910. It was in the fall; I feel sure that it was in the fall of the year. I am almost sure it was 1910. It could not have been the spring of 1911; I was working for Allison in 1911. I went to work for him on the 28th of December in 1910, after I quit McCann & Harper.

I did not see any jobs of cementing of wells in 1908. I seen Walter George's job in 1909. To the best of my recollection it was in the summertime. I don't know the name of the well. It was between Hosston and Vivian. I don't think Walter George used the plug on that well. They were cementing when I got there and they were siphoning in. I don't think they might have inserted the plug before I arrived, for the reason that Harper was feeling of the cement to see when it returned.

I don't recollect exactly what dates on what wells I worked on in 1909. I don't remember the wells I worked on in 1910 or any of the dates. I couldn't give the exact

(Testimony of A. O. Smith.)

dates of the wells. I think I worked on that Busch-Everett well at Alden Bridge in 1910. I am not sure, but I think it was in 1910 I worked on that well.

I don't remember the names of the wells I worked on in 1911 and the dates of the time I spent on those wells; not for McCann & Harper, as I didn't work for them in 1911. I don't remember but one well I worked on for Allison then; that was Barnes #1. I went to work for them on the 28th of December, 1910. I recollect that by a little incident that happened then that fixes the date in my mind. They built me a shop there at the well, and I dressed tools for all five of his rigs, and they hauled the bits in to me there and I sharpened them and they delivered them. They were working on a good many wells, and I couldn't state the names of them or who they were for, except I remember the Standard Oil Company.

In 1913 I worked on Smith #1 at Neighborton. I did work on a number of other wells during 1913 besides that one that I don't now recall. I know positively it was in October that I went to Neighborton and went to work on that Smith #1.

In 1914 I had a shop just like I did at Oil City. Allison had a number of rigs running and I tended to the shop and didn't pay any attention to what rigs the tools went to.

I didn't see any jobs of cementing in 1910, unless the Harper job in 1910. I don't know that they were using the plug method of cementing in 1910 at all. I don't know of any operators down in the vicinity in which I was working using it. I did not pay very much atten-

(Testimony of A. O. Smith.)

tion to the methods used for shutting off water from the oil wells in 1908, except when they drove the casing. That is about the only method they used. It didn't interest me very much. That was out of my line and I never paid very much attention to it. I noticed they drove the casing, and I asked what that was for, and it was to get a seat. They never used any plugs on the wells that I worked on in 1908, and the same is true of 1909, that I don't know except with regard to the wells I actually worked on whether they used a plug or not. I have seen a sack of shale used as an indicator. That was while I was working for Bob Allison. The first time I seen that they used a sack of shale on top of the plug—the first plug that I ever saw. I did not hear of them ever using plugs before I went to work for Bob Allison. I never heard of it at all. To the best of my recollection it was sometime in 1911 that I saw the first plug used by Bob Allison. I never heard of the use of the plug in 1910 by anybody.

I first heard of this case in which I am testifying about a month or so ago. Mr. Canfield told me about it. I am not working now. I have been out of employment about three months. I met Mr. Halliburton here. I am not being paid for the time I have spent on this case testifying. I have been here in El Dorado a little over two months. I came from Corsicana here. There was nothing doing over there and there were possibilities of going to work here. That is the reason I came here, because there is more work here than anywhere else in my line, but I have never been able to get any here. Mr. Canfield did not tell me they were trying to prove that

(Testimony of Fred Stone.)

the plug was not used until 1911. He asked me what I knew about it, and I told him what I knew about it, and he asked me if I could come up here and make a statement, and I made a statement before this. I don't know whether Mr. Lyon took my statement. This young lady (pointing to stenographer) took it. No one asked me the questions. They asked me to give them this statement, and I went ahead. I didn't dictate the statement to the stenographer; I made the statement to Mr. Lyon and he dictated it to the lady. To the best of my recollection that was a month ago or three weeks ago.

I have been knowing Mr. Canfield over ten years. He did not suggest to me that I might get employment here some place, or that Mr. Halliburton might possibly give me a job. I don't think Mr. Halliburton has got anything that I could do. I have not been paid anything for any of the time that I have spent on the case. I have not been promised any employment or any pay.

TESTIMONY OF FRED STONE, FOR PLAINTIFF.

FRED STONE,

called on behalf of Plaintiff, being duly sworn, testifies:

My name is Fred Stone. I live at Vivian, Louisiana. I am thirty-nine years old. I am a driller, and have been drilling on a well drilling crew since 1909. I entered that work at Vivian, which is in the Caddo field in northern Louisiana. I started work sometime in the spring of 1909 for Billy Wolfe. That is what it was known as

(Testimony of Fred Stone.)

then—Billy Wolfe. It might have been named Wolfe Drilling Company. Anyhow, I worked for Wolfe. I worked as helper on the floor of the drilling rig for him, until sometime in the late summer of that year, about August, I guess, when I left there, August or September. The first well I worked on for Wolfe in 1909 was Edwards #2, and then we drilled Childs #2 and Blackman 2 and 3. I don't know which one of those latter were drilled first, as we were jumping about back and forth over the lease. I know how the pipe or casing was set in Blackman Well #3. I saw the surface string set, but I am not positive about the oil string. We set the surface casing and washed it and then cemented it by siphoning. We did not use any plug. While I was with Wolfe in 1909 I did not see any cementing done in which a plug was employed, and I did not hear of any.

After leaving Wolfe in the late summer of 1909 I went to work for the Sun Company. That was in December, 1909, on Barr No. 1 well. I worked as helper on that well. J. W. Clark was in charge of it. I remember the circumstances about the setting of the 8-inch pipe in that well. We set the casing right above the gas rock somewhere around 1000 feet and cemented. We used a sack plug on that. That was the first time I ever saw a plug used.

Q State what you know about what led to the use of that method on that well.

A While we was drilling that well, Mr. Clark and the civil engineer, I have forgotten his name, and Mr. Pew asked how we had been cementing on the wells around there, and I told him all I knew was siphoning,

(Testimony of Fred Stone.)

but Mr. Pew or Clark were not satisfied with the siphoning method, so they decided to figure out some other way of cementing. They first proposed to box up the derrick floor 12 inches high and mix the cement in the floor and take it up with a pump and pump it in the well. They didn't do that, so they filled a box about six feet square and mixed a box full of cement, and used a short suction for the pump about four or five feet in length, and they picked that up with the pump and got the manifold full of cement when they ran out of cement. The cement set and we had to tear down the manifold and the pump and wash the cement out. After that they decided to use the sack. They made a displacement with the four-inch drill stem and poured the cement in the top of the casing and put a sack plug on it and pumped it down until the pump stopped and they called it a job. It made a good job. Some of the cement was left in the pipe, I don't remember just exactly how much. Some of it come back up in the casing and we drilled out some of it. I don't remember just exactly how much cement was left in the casing, but there was quite a bit in there.

To my knowledge that was the first well in northern Louisiana that had been cemented by employing a plug of any kind. I had never heard of a plug before that. The date of that cementing was either about the last of December or the first of January, as we were drilling at Christmas time, December, 1909. We worked, I guess, about a month longer. We was about five or six hundred feet deep on #2 when I left the Sun Company and went to work for the Gulf Refining Company as a helper on a drilling crew. I worked for them until the next

(Testimony of Fred Stone.)

June, 1910. I have to figure out where I went from there, we jumped around so much. As well as I remember I went to work for J. W. Clark, Clark & Morgan it was then. For the Gulf Refining Company in 1910 we drilled one shallow well near Vivian. Mr. H. A. Melat and Canfield had charge of the drilling operations of the Gulf Company at that time in the field. Canfield was directly in charge at the wells. We didn't cement that well at all.

ON

CROSS EXAMINATION

Mr. Stone testifies:

I can not remember exactly the month I went to work for Billy Wolfe; sometime in the spring. We had drilled several wells in July, up until July. I am positive it was not *the* as early as January, 1909, I went to work for him. I am sure of my year, 1909; it was not 1908. I used to be in the teaming business, and I was in the teaming business up until 1909. I drove a team awhile in 1909, in the early part of 1909. When I went to work for Billy Wolfe I was a helper; it was my first work on a rig. Before that all I knew about oil field work was what I saw in the field—hauling and teaming.

In 1909 I worked on Edwards #2, Blackman #2, Childs #2, and Blackman #3. Edwards #2 was my first well. That was when I went to work for them sometime in the spring. I think it must have been about April or May. I have not looked at any logs of wells or anything like that to refresh my memory as to these dates, and I have not talked the matter over with anyone else in order to be sure of them. I happened to testify in this case, because Mr. Canfield met me down on the

(Testimony of Fred Stone.)

street and asked me if I wasn't working on some of those old wells in the early days. He said he wanted to find out what I knew about it.

I live at Vivian. I came to El Dorado in February, about the last of February. I have been employed here since that time all the way through, working for the Eureka Drilling Company Hill-Bostick as a driller. I got my foot broke on the 4th day of August and I had it in a cast five weeks. I have been off on account of the broken foot. I didn't draw any time from the company, but I drew insurance money.

I don't think Edwards #2 was cemented; I am pretty sure it wasn't. The surface casing on Childs #2 was cemented, but I don't know anything about the other casing. Blackman #3 we cemented the surface casing, but I don't know how the oil string was set. I don't remember about Blackman #2. I don't know whether it was cemented or not. Some of these wells were cemented and some were not; I mean the surface casing. I don't know anything about any cementing on the oil string, or any of those wells I mentioned.

I first heard of the use of a sack plug along the last of December or first of January, 1909, and that was on Barr #1. That is located about two miles east of Vivian, between Vivian and Hosston. I saw the cementing work on that well, where the sack was used; I helped do the work. I helped mix the cement and helped run the casing in the well. I was working at that time as helper for J. W. Clark in charge of the well. This sack plug, they taken a cement sack and filled it full of shale out of the ditch, and put it in the casing on top of the cement.

(Testimony of Fred Stone.)

and put some empty cement sacks on top of that. It went to the bottom and stopped the pump. We supposed it did. That is the first time I ever heard of that method of cementing.

After December or January, 1909, after that Barr #1 was cemented with a sack plug, I did not observe the use of the plug method of cementing in 1910. We didn't cement any of those wells. I was not in a position to see any jobs of cementing in 1910, only the ones I was working on, I didn't know what methods were being used on other wells, only just what I heard. I heard around on the streets that they had begun using a plug. That was late in 1910, some time after I saw this plug on the Barr #1.

Q Do you know what time it was in 1910 you heard them talking about using plugs generally?

MR. LYON: That is objected to as assuming a fact not testified to by the witness; he has not stated that plugs were being used generally then.

A No, I don't remember exactly. I don't think there was very much cementing done in the deep field where I was at that time. We used rope packers set in a rat hole. In using the rope packer they get the seat for the casing, then they reduce the hole and drill a rat hole about five or six feet below the bottom of the main hole, then they put a short nipple of five or six feet long on the bottom of the casing and wrap that with rope—small rope or hemp packing—and set it down in that small hole and drive it if necessary, and the rope acts as a sort of a packer, using that on the deep holes. That is all the companies that I knew anything about around there.

(Testimony of Fred Stone.)

All I know about what those other companies besides the one I was working for were doing in 1909 and 1910 is what I would hear on the street, about the other companies. I never saw any of them using that packer method.

I knew McCann & Harper. I didn't know how they were shutting off water from their wells in 1909. Harper came to the Sun Company well with Clark when they were fixing to cement that well. That is Barr #1 well. He did not suggest the use of this sack of shale that I know of. I was under the impression that the civil engineer worked it out; I don't remember his name.

ON

REDIRECT EXAMINATION

Mr. Stone testifies:

Q To what extent were these matters of setting casing to shut off water discussed among you men that were working in the field in 1909 and '10? You say that you discussed them in the street.

A Well, I will tell you, where fellows meet on the streets at night, that's all they talk about is their work, and if anything happens unusual we hear about it on the street. It is the custom for the workers in the field to congregate along the streets in the oil town when they are off work, and that is where those discussions took place. They drill lots of wells on the street. In 1909 or 1910 I never heard any mention that Harper & McCann were using the plug method of cementing a well.

Q Do you believe that they were?

MR. WESTALL: Objected to as totally incompetent, irrelevant and immaterial as to what he believes.

(Testimony of Fred Stone.)

A No, sir, I don't believe they were. I have known Mr. Harper personally since that time. I am on very good terms with him; we are good friends. I knew Walter George; I was on good terms with him.

Q BY MR. WESTALL: If I should tell you that both of those men have sworn that they used the plug in 1909, giving the names of the wells and also giving the names of the crews that worked on those wells, all of whom testified that they used the plug, would you believe it?

MR. LYON: Objected to as incompetent and not a proper method of proof. One witness cannot pass upon the testimony of another witness, and it is not proper cross-examination to attempt to cross-examine this witness upon the alleged testimony of other witnesses that was not referred to in the direct examination of this witness.

A I wouldn't doubt their word.

Q BY MR. LYON: You mean that you would not want to offend your friendship with Mr. Harper and Mr. George?

MR. WESTALL: We object to that question; you asked him on direct examination.

A That might have happened, but I didn't hear anything about it. I never heard Mr. Harper or Mr. George make any such claim except what Mr. Westall states that they testified to. I knew Mr. Harper and Mr. George both in 1909 and 1910.

(Testimony of John Bird.)

TESTIMONY OF JOHN BIRD, FOR PLAINTIFF.

JOHN BIRD,

called on behalf of the Plaintiff, being duly sworn, testifies:

My name is John Bird. I will be forty years old the 20th of next July. I live at 1137 Dalzell Street, Shreveport. I am in the land and leasing business, well drilling, promoting wells and getting wildcat acreage—several different lines, all connected with the oil industry; I have been for twenty years, and particularly with the oil well drilling part of the industry. I started out in the leasing business and land business in the beginning of the Caddo field. I lived at 715 Crockett Street, Shreveport, at the time the Caddo field was discovered. I first became interested in the oil drilling game when Savage Brothers drilled the first oil well in Caddo. One of those was the discovery well, made a small amount of oil. The next spring we formed what was known as the Louisiana Real Estate and Development Company, composed of Louis Herlperin, Charles Summers and about twelve stockholders in various lines. My brother, T. E. Bird, and myself went out to secure leases in the proximity of the wells that were being drilled. We paid those farmers whatever we could get the lease for, from one dollar an acre up to four or five, and then sell them to the big companies who were just entering the fields at that time. I mean by leases, oil leases, the right to exploit oil on the land. There were no oil companies here then. The Producers, the Gulf, the Texas, the Standard, or any of them were not in the field at that time. Several

(Testimony of John Bird.)

of them had scouts watching the possibility of getting oil and we dealt with them. I have been in this business at Caddo Parish continuously; we are operating up there now. We have a lease in Section 4, known as Section Thirty Oil Company.

In 1905 I went into that work in that field. I was traveling, and I made that territory, but I quit my job with the grocery concern that I was traveling for and went exclusively into the land business and lease business, and have been in that business continuously ever since.

Q Now, will you describe to us what experience you had or what opportunity you had to know the development of the Caddo field and how and what wells were drilled there from 1905 up to 1910?

A Well, we evolved the idea of keeping books on all the rigs that were running, who the operating company was and how deep they were, and when they finished what the production was and if it was a dry hole. I was interested in a map making concern which we had to keep tab on every well drilling and furnish information to our office so we could have the locations properly. There were no maps made. I made the first map of the Caddo oil fields when there was one well drilling and no production. They had not finished the first well. We then saw the chance to act as correspondents for different papers who wanted information, so I made a proposition to a number of oil journals to send them the data on the field, and for the new operators that were not familiar with the field, we would make up what we called a drilling report each week, and I went around from rig to rig

(Testimony of John Bird.)

and got the dope from the drillers and roughnecks and used to type these copies myself in the office and send them in to the different companies. We did that continuously from the time we maintained an office until right on up to date. We don't keep it any more because we get our records from Mrs. Vaughan at Shreveport. We kept it up until 1919, and it got so big and then we couldn't get information from the companies like we wished. They wouldn't give it to us. In the early days of the field, up to say 1912, the attitude of the operators as regards giving us information was fine with us; we would give them our dope and they would return us theirs out of a courtesy proposition. All of the scouts for the other companies would tell us what was going on on wells that we wouldn't see, and we would tell them on wells that we were watching closely.

We had a fire at Vivian and lost our office, practically everything except a few odds and ends of personal letters that I kept at home. The papers that we corresponded for would send us clippings back, and we put them in a clipping book, and they would pay us at the end of the month for the amount of space that we sent them.

The headquarters of our firm were at 1019 Commercial Bank Building, at Shreveport, and we had an office at Oil City, and we had one at Vivian. We have had an office in every boom town that has been in Louisiana since the field opened.

I can produce specimens that have been preserved, to show the nature of the data that I compiled on these different wells. I have some in my book, a specimen of one of

(Testimony of John Bird.)

our reports, showing the name of the company, the number of the well, the section, township and range and the depth of the well and condition of it on Saturday of that week.

(First paper received in evidence as Plaintiff's Exhibit Specimen of Bird Field Reports, entitled "Report of Northwestern Louisiana, week ending July 24, 1915.

Second paper received as Plaintiff's Exhibit Bird Plat Books)

THE WITNESS: We would send our men out, or go out ourselves and get the location of the well and the name of the company drilling it and what information we could get and follow that well until it was completed, and then take it off our books. We used this form for that purpose; they turned these in weekly. We had at one time about twelve men working for us and four stenographers doing this work for us as the fields grew large.

In the years 1908 to 1911 I stayed in the field all the time except on Saturdays I would go to Shreveport, or maybe during the week on a business deal. We built a bungalow of our own at Oil City, where I lived. During the first part of the boom we lived in a tent, when it first started, and later boarded at the Edwards House and the Bailey Hotel at Vivian. We made it our business in 1908 to 1911 to become acquainted with all of the operators and know just what they were doing as near as possible. Some wouldn't tell us. I knew all the old timers personally and know all the oil men now, as far as that goes. In 1908 to 1911 I knew both McCann and Harper personally. McCann was a close personal

(Testimony of John Bird.)

friend of mine, and I have shared my room with him many nights, and had many meals with him, and he used to give me whatever dope that he could for my dope sheet, as we called it. I knew Billy Wolfe during that time. He did not take information from me. He was very nice. Billy has always been a nice clever fellow.

I went into the oil business with the one idea in view of trying to learn it—get all the dope I could. I saw a possibility of changing my business, and I made every effort I could to get all the information that was available regarding any ideas. I bought several patents on oil ideas during my time and watched new devices being used. I went out and watched the drilling operations, and when I didn't know what they were doing I asked them so I couldn't fool myself about it.

In the northern Louisiana field in 1908 to 1911 they had lots of trouble due to water entering the wells below or at the shoe of the casing or pipe. As to the extent that trouble entered into my doings or personally affected me, we will just take one instance at Vivian. We were very vitally interested in the outcome of those wells because we bought a subdivision from Mrs. Christian, and if the wells were not good, why, we had just lost all the money we put into the proposition, and, naturally, we followed the outcome of the wells very close. I mean if the field didn't pan out our subdivision was valueless.

Q To what extent, to your knowledge, was the trouble with water breaking into the wells being experienced by the operators in that field in 1908 to '11 subject to discussion in Vivian and Oil City and around the field among the workers and operators?

(Testimony of John Bird.)

A Well, all the old time drillers were cable tool men. They didn't know anything about our formation and they didn't know anything about rotary rigs, and these fellows who came from south Louisiana and over in Texas that had had the same experience at Beaumont knew how to set shoes and nipples and those things, and we used to have round table discussions at the hotel at night and out on the rigs regarding the best method of handling the situation. I have talked to Mr. McCann and Mr. Harper about it many times in 1908 and '9.

The first real experience I had with methods of setting pipe to shut out water was when Roger Canfield came up to work for the Gulf, and they were setting in gumbo on the lake there on the Gulf wells wherever it was possible, and Roger and I became good friends, and we even tried to work out an idea of our own, and we were interested in the lease that was being drilled, and we were afraid of water and Bill Henning was our driller, and he hadn't had much experience with a rotary rig, and we naturally tried to find out everything we could. Bill was an old cable tool man. That was in 1909. Roger came to the field, I think, in 1909. They set the pipe in that field in 1908 and '9 with shoes and nipples. I kept track of how the different wells were set. I watched them and talked with them about it, and with the different drillers that are too numerous to mention. I would meet them on an average of once or twice a week and talk it. When they couldn't get a seat in gumbo, they would set with a shoe.

The first cementing I knew of to exclude water at the bottom of the pipe was on the Barr well at Vivian. I

(Testimony of John Bird.)

do not mean cementing by the plug method. They used a sack of shale with pyrites of iron in it. I had heard of a method of siphoning cement down without any plug before that. It wasn't a success on one or two wells, however, and was not much used prior to that Barr well. I saw Billy Wolfe use the siphoning method, and saw McCann & Harper use it. I never knew of Billy Wolfe or McCann & Harper using the plug method of cementing in 1908, '9 and '10. I believe they would have told me if they had found anything that was new in the cementing line, because they tried siphoning, and in some cases it wasn't a success. I discussed with them their different problems just as I did with others.

Referring to Mrs. E. C. Christian's well #1 located in the center of the Northwest quarter of Northeast quarter of Section 6, Township 22, Range 15, in Caddo Parish, drilled in March and April, 1909, by Walter George for McCann & Harper, I watched that well very closely for the reason that we had bought this tract of land from Mrs. Christian, and we had made her a partial payment on the forth acres known as Christian Heights in Vivian today. Mr. J. L. Breathwit and I watched that well after it got down to about 900 feet from then until it was finished, and we then closed the deal because we thought the well would be a great producer. Instead of that, it didn't amount to very much. They had some trouble on it and it didn't make much oil. I was out at the well the day that they set the 6-inch, and we went over to the camp and had dinner and came back, and we all cleaned up and the crowd came to Vivian along in the afternoon. They set the 6-inch, to the best of my recol-

(Testimony of John Bird.)

lection, in gumbo. They didn't cement the well, not that I know of. There was no cement out there, and nobody said anything about cementing it. I am quite sure of that.

Powell #1, drilled about February, 1909, by Wolfe, Slim Crawford being the driller, was right in south of Vivian. That was on Frank Powell's land. I knew Frank Powell very well. He used to do all my notarial work up there. I kept track of the drilling of Powell #1 well. That well was also a poor well, and I discussed it with Frank Powell afterwards, and he claimed that the well was not finished properly. He had great expectations of a well and didn't get very much out of it. If I remember right the setting of the pipe in that well was a gumbo proposition too. I was there at the well when the pipe was set, because when they had finished the well and said they were going to set the six, Mr. Breathwit and I drove out to the well. To my knowledge they did not cement the well.

Prior to the cementing of the Barr #1 by Jim Clark in northern Louisiana, they didn't cement any of the wells only the surface casing, except where they siphoned in, and they did not use any plugs. They were experiencing considerable trouble during that time with getting a proper seat for the pipe to shut out the water. We even went so far as Charley Doolittle and Charley Latham. We hired a man by the name of Martin at the machine shop to see if we couldn't make a packer that would shut the water off, and Charley Clayton had already patented one, and Harry Brewster made one he called the Caddo canvas packer. It was a collapsible packer that was put in the bottom of the well to shut off the water.

(Testimony of John Bird.)

During 1908 to 1911 in that field very little work was going on, fifteen or twenty rigs running. What the other fellow was doing was pretty well known, for the reason that nearly all of the present day operators were roughnecks and were made in that field there. Take Slim Crawford and Fred Stone, who was just here, and Bud Durr, were all a bunch of country boys up there, and were just roughnecking at that time.

The first real job of plug method cementing that I saw was Bob Allison's. I think it was on Siles 3 or 5. I remember the first two wells cemented by that method for the Gulf Company to which Mr. Canfield referred here. I was on both of the wells and drove out with Roger when they cemented. It was 1911 before the plug method really was put to practical use in northern Louisiana. I will tell you the reason I say that: I got a snake bite in the week before Christmas in 1910, and I was laid up practically for six months. I was partially paralyzed, but I could get out and get around, and my brother went backwards and forwards to the field and I stayed in Shreveport, and I used to write up the reports as he brought them in, and I kept in touch with the field. I was practically out, you might say, for five months. That was December, January, February, March, April and May of 1911.

When the plug system of cementing was adopted in the northern Louisiana field it was discussed quite a bit by the operators and workers.

Q Did you ever hear in that discussion any generally accepted theory as to the origin of that method?

(Testimony of John Bird.)

A Yes, it was understood that it was first used in California.

MR. WESTALL: We move to strike out the witness's answer as to what was understood, and also on the ground that the testimony is purely hearsay.

A Well, on the Bailey #1 and #2 and from that on up to Bailey #16, Ed Bailey and I were interested, and I lived at his house while I was at Vivian and it was a boarding house for the workers in the field. It was called the Bailey Hotel. It was run by Ed Bailey's mother. We secured a lease for him, and after they got a number of wells, why, they quit keeping boarding house and Ed became the manager for his mother's oil business, and the water situation between Vivian and Hosston was very bad. We had trouble on the old Southern Oil & Gas Company lease, which was owned by a crowd of us, and as soon as plug cementing became known we used it continuously and used it up to date. Bailey #4, I believe the well made 800 or 900 barrels. That was shallow stuff. It was from 970 to 1020 and they came in making sometimes 1200 to 1500 barrels, and if you didn't have the seat properly—in other words, if the casing wasn't seated properly, the well would cut itself out and go to pieces, and the water would come in, and we talked it over with Bill Henning, and I am quite positive the method of cementing was discussed as a California method. I heard others refer to it as the California method frequently after that. After it became fashionable to cement, why, it was called the California method.

(Adjournment to 1:55 P. M.)

We furnished the detail information, such as illustrated in the specimen report of northwestern Louisiana, week

(Testimony of John Bird.)

ending July 24, 1925, during the years 1908, '9 and '10, to the Shreveport Times, Shreveport Journal, The Dallas News, the New Orleans Item, and we sent a generalized monthly report to the Manufacturers Record of Baltimore and to the Fuel Oil Journal and Oil & Gas Journal of Tulsa. The information we sent to these publications was used as a matter of news as to the progress being made in the new field, and when a well came in we endeavored to get what they called "action pictures," that is, the well flowing, for which we got a bonus for a picture of that kind. The information we so furnished to these publications was accepted by them and published as authentic without question. We were their authorized correspondents, and if a—like the big Levee Board wells and the Producers wells and the Stiles wells, we sent in big stories of these wells by telegraph, sometimes as much as a thousand words.

When we first heard of the plug method being used, it was discussed and primarily agreed upon by all the operators that I talked with as the California method of cementing wells. Several drillers had gone to California and had returned to Caddo and then they started using cement. Our first active drilling of a well was in 1911 on the Murray. We bought a drilling rig and took a dip in the oil business then. Since that time we have drilled about sixty of them—to be exact, sixty-three. In 1908, '9, '10 and '11 I never knew or learned of any claim being made by any operator or worker in the northern Louisiana field that the plug method of cementing had been invented by him or there and not in California.

(Testimony of John Bird.)

ON

CROSS EXAMINATION

Mr. Bird testifies:

The Barr well, at Vivian, in which I said a sack of shale was used in cementing, was drilled in 1910. I can tell you about it in my scrap book which I have here in front of me. The Barr well was cemented with a sack of shale but not with a wooden plug. By referring to this scrap book, the date when it was cemented was in 1909. This Barr well was about two miles south and east of Vivian on what is called the Hosston road, on Dave Barr's lease. Jim Clark was in charge of the drilling of it. That was, I think, in the spring or summer of 1909. I can look in my book, though, and tell you the exact date. I have that mixed up with the Childs. There were four wells drilling in there, the Childs well and the Barr well and the Powell well and the Blackman well. They were all drilling in around Vivian in the beginning of the first operations there. I visited the lease a number of times when they shut down to cement this Barr well. We went over and they were finishing up the well then when we got there.

Q You know that the well was cemented using this sack of shale in place of a wooden plug, do you not? The Barr well I am talking about now.

A You have got me balled up on that. I am referring now to my data that I have and that I kept on those wells. It is a typewritten sheet which I prepared myself for my records. I ran through my records before I came up to testify, to check my stuff up. I didn't say I was confused as to this Barr Well. They used a sack of shale on the Barr well. I said that the well that Jim Clark was on

(Testimony of John Bird.)

was the Barr well, and that was the well that was cemented, and they used a sack of shale on that well. That was on the Barr lease. It is correct that this Barr well was cemented using a sack of shale in place of a wooden plug; that was my understanding of the way the well was finished. That was drilled in 1910. I am sure that the well was Barr No. 1 and was started in 1909 and finished in 1910. I am sure about that. I remember that date by digging up some old records and having it in my mind for the reason that we had bought a lot of property up in Vivian that year and were getting ready to open up our stuff up there. We moved our office to Vivian between Christmas and the first of January. We had it before at Oil City and Shreveport.

I would have to look in my dope sheet to see who the drillers and helpers on Christian #1 well were. I can get the dope sheet. Before testifying in this case I have not read any of the testimony given by prior witnesses. I looked up my own stuff. I have talked to nearly everybody that was up in the oil field about that time—all these old drillers and roughnecks. I talked to Hearne Harper. I see Hearne every time he is here. He is out of town now. We talked about all the old wells in the early days up there when he was here about ten days ago. I discussed the methods of cementing those wells with him; that was the prime idea of the talk.

Q Did you talk with anyone else that worked on the Christian No. 1 well regarding the dates?

A No, I didn't talk about that. I was talking about the Barr well. I talked to old Dingbat Kelly and to Slim Simmons and Diamond Dick about the method of cement-

(Testimony of John Bird.)

ing employed on the Christian #1 well, and other old timers that were there.

Q Why did you talk to those men? Why didn't you get the names from your records of those who had actually worked on that well?

A We didn't keep the names of the men who worked on the wells. We kept the depth of the well, the location. We were not interested outside of knowing them and who was on the well. We talked to the contractors and maybe the owners of the property. I could get the names of every man who worked on every well in the Vivian District, if you will give me the name of the well and the time. I can tell you the contractor, the depth of the well, the date it came in and all about it. I made a living doing that—cleared \$100,000 furnishing that information.

I did not come from Shreveport here to testify; I am interested in some stuff up here; got some stuff out in the East field and am looking after some leases and have a deal or two on hand. I did not give a statement or affidavit to anyone connected with this case prior to my coming here to testify. I talked things over with Mr. Halliburton and told him that I could give him information that would probably help him, and volunteered to give it to him. I am up here on my own expense and well able to take care of myself.

One or two of the persons that I talked over the method that was used in cementing Christian #1 well claimed that they worked on the well. I can get the dope for you on Christian #1. I have not discussed Christian #1 with anybody. All the data that I had I very gladly furnished it to Mr. Halliburton and gave it to him, anything that I

(Testimony of John Bird.)

thought would help him out on the proposition. I had maps and pictures and stories of the oil field, and then what I knew myself. I stayed there continuously for a number of years until we moved to Bull Bayou and Homer. We brought in Gusher Bend. I haven't discussed anything regarding the Christian #1 with anybody, but I know all about it though. I can go and get you the stuff on Christian #1 because I have that dope.

Hearne Harper and I talked in a general way about this Halliburton proposition. We talked two hours and a half the other night and he was talking about the merits of the cementing idea and about that time the case was settled. I thought the Standard had compromised, and I haven't talked to him since that. I know him very well and we are very friendly.

Q You know that under this agreement with the Standard that anyone who wants to come in under the contract is to pay \$75 royalty per well; did you know that?

MR. LYON: That is objected to as not the best evidence.

A Yes, sir, what I know about the compromise is what I read in the papers like everybody else read.

Q Let me ask you what you suppose that compromise was.

MR. LYON: Objected to as not the best evidence and not proper cross-examination.

A My conclusion regarding that would be like any other newspaper item. I am interested this way, that I think the cementing idea is good, its clever, I think, and I think it is worth all they ask for it. As far as what Mr.

(Testimony of John Bird.)

Halliburton did with the Standard, that's his own business. I will run mine and he can run his. I don't know any of the inside of the proposition. When he gets ready to make a contract with us, we will look it over and I think we will take it. I don't know what it is. We are getting ready to drill a well out here, and when we get ready to cement, we are going to have him cement it and pay whatever he charges us for it. I am not interested in the terms of that contract at all. I don't care anything about it. I don't belong to the Independent Oil Association, and I am not interested in what they do.

We have used this plug method of cementing in every well that we have ever cemented. Bob Allison drilled six for us, and Malley Easton drilled seven, and Canfield drilled one. All told we have drilled sixty-two or three wells. We have used the plug system on every one of them. I have no special arrangement with Mr. Halliburton as to past damages or profits on these wells. My understanding from the general talk on the streets is that everybody is satisfied. I know I am. If Mr. Halliburton wants \$250 to render you the service of cementing, why, we are just going to pay it because we make the other fellow pay it anyhow. Nothing has been said to me about having to pay any past damages or profits from our prior use of this plug process. I understood that all of the past royalties or past charges against the operators would be waived if they came down to the mourners' bench and signed up. In other words, if we go ahead and use Halliburton's system from now on, why, that is all. That has been told by a number of pretty good operators, and they are all satisfied with it. I talked to Rabbit Herring. He

(Testimony of John Bird.)

has drilled about 150 wells and we talked about Mr. Halliburton using his system up in Oklahoma where he used 700 sacks of cement at Tonkawa. He put the cement in in an hour and ten minutes and said if that wasn't worth the money nothing else was, and I told him I thought so too. I can tell you how he succeeded in putting that cement in there so quickly; I have seen him operate. He has a high pressure pumping system, and then he has a mixer and he puts it in there about as fast as the rough-necks can put the cement to it. I think it is clever myself. I laid off a whole day and drove seventy miles to see it work.

Q In other words, you believe that the use of that mixer would be well worth the payment of \$250.00 per well when used in connection with the plug method of cementing, is that correct?

A I will tell you my experience, Mr. Westall. I will tell you why I believe it is correct. We lost a fortune in a well on the Youree. I had to quit and go to work because we didn't have it properly cemented. We had a bollweevil driller who didn't understand cementing, and I sent for Roger Canfield and we give the well up. That was the only well that we ever lost, and we have had as much as 100,000 barrels of production a month. For little fellows I think we did very well. We drilled six in a row at one time and they were all good. We cemented them all. The oldest operator that came to the Louisiana fields is Mr. Harry Parker. He got a 10-barrel well offsetting a 4,000-barrel well of ours, so we claim that we know our business, and we told him what we did. He used an old method that they used in West Virginia, and didn't get

(Testimony of John Bird.)

away with it, that is, plugging back. He plugged back and missed it.

Q Your understanding then is that when you agree to pay Halliburton \$250 per well for cementing in the future, that he will use this mixer that mixes the cement so rapidly and will also use the plug, and that by agreeing to pay that \$250 you will not be required to pay anything additional for the use of the plug or for the use of the mixer, is that correct?

MR. LYON: That is objected to as incompetent, irrelevant and immaterial and not proper cross-examination.

A Nothing has been discussed with us regarding the use of the Halliburton system whatever—whether we should pay for it or not. We never paid for anything. I will pay him for every well that he cements for us.

Q Your understanding of the agreement then—this proposed agreement—is that if you employ Mr. Halliburton to cement the wells at \$250 per well, that you will not have to pay any past damages or royalties for past infringement, is that correct?

MR. LYON: Same objection.

A My understanding was when the suit was settled with the Standard that was the end of the proposition when this agreement was reached, and I have discussed nothing with anyone regarding whether we got to pay anything or not for the wells that we cemented ourselves prior to this lawsuit. My understanding is it is all settled now and we just rub out and start over again.

Q And your understanding is that in the future you have nothing to pay but \$250 per well, and that the Halliburton Oil Company or Halliburton will perform all

(Testimony of John Bird.)

services in connection with the cementing of the well without any additional charge, is that correct?

MR. LYON: Same objection.

A Yes, we pay \$250 for each well that they cement for us and nothing in addition for the use of this mixer. All that we are interested in is getting our wells cemented. To properly cement them, he knows the cement game better than I do. He can use whatever he wants to out there. I know what is supposed to be a good cement job. That is all I know about it. I have nothing to do with Mr. Halliburton and the Standard Oil Company. I am not interested in the litigation. I would be interested if Mr. Halliburton would start suit against me for past damages and profits; I would be interested to protect my rights just as he would do his. I have never thought of a suit against me for infringement of the patent.

Q You do understand, do you not, that if you have been infringing to the extent that you say you have that you would be liable for past damages and profits?

A Well, anybody else would that infringes on a man's patent. I am interested in a couple of patents myself right now.

Q You do understand, however, that this settlement with the Standard is to settle this controversy for the future, and that you or any of the other independent operators will not be bothered with any past claims for damages and profits?

MR. LYON: Same objection.

A I told you that candidly I don't know what the basis of the settlement was except what I read in the paper, and

(Testimony of John Bird.)

I never saw one of these contracts that the operators are going to sign.

Q What do you understand this contract is that the operator is going to sign?

MR. LYON: Objected to as incompetent, not the proper method of proof, and not proper cross-examination.

A I wouldn't venture to say until I see the contract, then I would give you my opinion on it and that wouldn't amount to very much. I talked with all of the operators as soon as the settlement was made; it was up and down the streets here. I talked with practically every man here that is doing any work out here in the field. Everybody seemed to be satisfied with the settlement.

Q You mean that this contract with the Standard was a settlement.

MR. LYON: Same objection.

A I don't know what contract Mr. Halliburton made with the Standard. I was very glad that the proposition was settled as it was. The basis shows on the face of the compromise what the operator will have to pay for having wells cemented, and that is all I am interested in. I am talking about the newspaper article.

MR. LYON: All of this is objected to and motion is made to strike as incompetent, and not a proper method of proof and not proper cross-examination.

(Witness produces newspaper article in El Dorado Daily News for Sunday, September 13, 1925, entitled "Compromise On Casing Cement Suit, \$75 Well," which is marked by the Notary as Exhibit Newspaper Article Produced by Witness Bird, and the same is as follows:

(Testimony of John Bird.)

“Compromise on Casing Cement Suit, \$75 Well. Standard of Louisiana, Sued for \$3,000,000, Settles with Halliburton. Water Control Patented. Process of 1909 Substituted for Loose Cement a Pressure Feed to Check Water Flow.

“Settlement by compromise of a \$3,000,000 suit instituted in Federal Court at Texarkana by the Halliburton Oil Well Cementing Company of Los Angeles against the Standard Oil Company of Louisiana, grants the plaintiff the virtual right to collect \$75 on each oil and gas well drilled in the state, according to Halliburton officials here last night.

“To avoid a court hearing on the suit, set for an early date before the Federal *Hudge* at Texarkana, and after months of study on the legality of his claims, according to Erle P. Halliburton, president of the cementing company, who arrived here yesterday, the Standard has signed an agreement to pay the plaintiff \$75 per well for the right to use the Perkins method of cementing casing in oil and gas wells. Since this is the only method used in any oil field in the world except in India, Halliburton said, it is believed that all South Arkansas oil operators will accept the contract offered the Standard of Louisiana.

Asked 3 Millions.

“The complaint of the Halliburton Company, that the Standard of Louisiana as well as all other oil companies operating in this district were using the method of cementing covered by patent rights held by Erle P. Halliburton and the Perkins Oil Well Cementing Company contrary to the regulations of the U. S. Patent Office, was made before the Federal court February 14, 1925. Halliburton

(Testimony of John Bird.)

alleged he was entitled to all profits accrued by the Standard from the wells that company had drilled in Arkansas and Louisiana, and placed his claim at the nominal figure of \$3,000,000.

“Halliburton, in his suit against the Standard, based his claim on U. S. Patent No. 1,011,484, granted to A. A. Perkins and Edward Double, both of Los Angeles, in 1911. Halliburton now shares with the grantees the rights of the patent, which specifies that until 1928 the owners shall have absolute control over the use of cement, where a plug is used with it, to shut off water in oil wells.

Checked Water Flow.

“The patent was taken out after Perkins, an old Pennsylvania operator, and Double, president of the Union Tool Company, had perfected the method to control a water flow encountered in wells drilled in the Midway, California field. Cement had been used prior to that time, but had been merely dumped into the casing, and under the terrific water pressure it was found that loose cement in the bottom of the hole was ineffective. Perkins, according to his application for the patent, filed in 1909, invented the method of forcing the cement into the casing, through it and around the outside from the bottom, under pump pressure. A plug was used by Perkins as a barrier between the water from his pressure pump and the cement, and it was on the simple plug idea that the patent was granted. The original idea, which is covered by the patent, has not been abandoned in cementing casing in wells drilled today, and it is this fact which was the basis of Halliburton’s claims against the Standard. Under the simple Perkins method no extra machinery besides the

(Testimony of John Bird.)

pumps, which are a part of every rotary drilling rig, is required to cement a well, and every operator in the fields uses the principle. The cement is first poured into the hole, a plug made of wood and just the size of the casing is placed immediately on top of the cement, and the pump pressure then forces the plug to the bottom of the hole, pushing the cement around the outside of the casing.

Forced Compromise.

Basing his application for the patent on this idea alone, Perkins was given the rights which were later upheld in California and Oklahoma courts. On every well drilled in those states since 1911 he, or his co-operator, Halliburton, has collected a royalty, and when they discovered several years ago that Louisiana and Arkansas operators were using the principle without their authority, steps were taken which resulted in the Standard compromise.

“In the contract Halliburton entered with the Standard the latter company stated that his claims to the right were recognized as legal, and that the agreement to pay the cementing company was entered solely to avoid payment of the immense amount to which Halliburton might justly lay claim, on the thousands of wells already drilled in the two states. The cementing company was represented in the proceedings against the Standard by Attorney Leonard S. Lyon of Los Angeles, a patent specialist, who is here with the head of his company. Mr. Lyon said last night that more than 7000 wells had been drilled in Arkansas and Louisiana, and that the courts would uphold Halliburton’s claims to all oil produced in the district. He declared, however, that the alternative given the Standard of paying the \$75 royalty on wells drilled in the future

(Testimony of John Bird.)

instead of paying for their failure to observe the rights of the patentees in their past operations, would be offered other operators in this field.”

September 23, 1925. 9:30 a. m.

Q BY MR. WESTALL: I understood you to say that it was your understanding of the agreement that if \$250,00 per well were paid for cementing to the Halliburton Company that the operator agreeing to so employ Halliburton would not be required to pay any past damages or profits for the use of the process. Is that your understanding?

MR. LYON: All questions asked this witness on cross-examination concerning such arrangement are objected to as incompetent, not proper cross-examination, not the best evidence, and motion is made to strike all answers thereto, and with the understanding of counsel, this objection and motion will not be repeated, but will be understood as going to each such question and answer.

MR. WESTALL: That will be the understanding to avoid the necessity of repetition.

A We have never been—in fact, I have never discussed the idea of contract, as I said yesterday. We are willing to pay \$250.00 per well. Understand it, I said yesterday, I am not a member of the Mid-Continent Oil Men’s Association, the Independents, as they call themselves. We never received any benefits from it, and we are going ahead on our own hook like a number of them are. Now, what contracts will be presented or we ask for we will probably accept them in due time. \$250 is the price of cementing a well. I understand and have understood that we will be permitted to make a contract with

(Testimony of John Bird.)

the plaintiff in this case, Halliburton Company, whereby if we employ him to cement wells we will not be bothered for past damages and profits for our infringement. I say we have never been presented with any such agreement in writing yet; I expect we will. Nobody assured me that any such contract would be offered to us. That is plain in the settlement with the Standard that they made, and it is authenticated by the item in the newspaper which is very clear. Everybody understands it that I have talked to. I didn't see the Standard Oil Company contract. I know the settlement has been made. That is their business, not mine. I know a number of agreements have been signed here between operators and the Halliburton Company. None of them have been presented to me yet for signature. We are not ready to cement so we are not interested in the contract yet. I have not yet seen any one of these contracts or proposed contracts with the plaintiff company. There is only one contract that they make with them. That applies to the independents or anybody else. The case with the Standard is settled as far as I know. I did not see and read and examine this contract with the Standard Oil Company or with anyone else.

Q Then how do you know that Halliburton Company will accept or offer you or anyone else a contract to cement wells for \$250 and to waive all damages for prior infringement?

A Well, I accept that article in the newspaper as being authentic. It is an interview with Mr. Halliburton personally regarding the case as it stands, and that is all I know. There is nothing in that newspaper article, which

(Testimony of John Bird.)

is set forth above, about \$250. I think that is the price that Halliburton charges us for cementing. No one has said anything about Halliburton waiving past damages and profits if we employ him to cement wells for \$250, and nothing of that kind appears in the newspaper article. Halliburton is running his own business; if he raises the price and we want the work done, we will have to pay it. \$250 is the set price. Everybody knows it. You can ask a roughneck out here; you can ask anybody that. There has been no argument about that that I know of.

Q Were you present at many wells during the operation of shutting off water in 1908 in this field?

A I was in Caddo in 1908, not in this field. I stayed there continuously, was in and out of the field all the time. I observed a number of the operations of attempting to shut off water in 1908, quite a few—several wells. I tried to see as many as I could. I wouldn't like to set any number without checking myself up. I know I went to a number. I know I went to see more than one or two.

Q You don't know whether you saw as many as five or six in 1908 in which it was attempted to shut off the water?

A Well, I would have to kind of check myself up a little. My recollection is very good if I take time to refresh it. Before testifying in this case, I have taken some time to refresh my memory as to what I observed in 1908 and '9. I did not come here and give a statement some days ago; I gave no statement at all. I have been in El Dorado, I guess, one hundred times since the field came in. I go backwards and forwards—come up here and stay for four or five days and sometimes two weeks at

(Testimony of John Bird.)

a time and then I go home, according to what I am watching out for. I have stayed here this time two weeks, and when they finished coring that well out there I went home and spent Sunday and here I am back again. I have not been compensated for the time I am putting in on this case here.

I am not interested in the Halliburton Company in any way, only in getting them to cement wells whenever we need them. We have been cementing our own wells until Halliburton came in the field here.

Q You have not yet signed the proposed contract of settlement, have you?

A I told you a while ago, I have never seen a contract. I expect if everybody gets them, we will too. I was never approached in regard to testifying in this case. I met Mr. Halliburton and told him that I had been here a good while, and if there was anything I could do for him I would be glad to do it.

MR. LYON: The question is broader than merely Mr. Halliburton's end of the subject. Does your answer hold good as to any other interests approaching you, such as the Standard Oil Company of Louisiana?

A Yes, they asked me and I told them I wasn't interested in the proposition because I didn't see any cementing done in 1908, '9 and '10, so they didn't want me. That was long before the compromise.

I am not related to Halliburton directly or indirectly, or to any member of his family. Judge Milling and Mr. Snell talked with me on behalf of the Standard Oil Company. They both discussed the question with me as to what I had seen in 1908 and 1909. They knew I had

(Testimony of John Bird.)

been in the field a long time. I was in the field when Mr. Cal Clark, the vice president and general manager, was a gang pusher on the pipe line. He knew that I knew something and knew that I had a lot of records because I used to exchange what we called "scout sheets" with the Standard. I gave them whatever I knew what was going on and they returned the courtesy by giving me all the dope on their wells. The same applied to the Gulf and Texas. Judge Milling asked me if I had an old Busch-Everett map showing the field between Vivian and Hoss-ton, and I told him I had one that Walter Dickson had given me, and I told him I would be glad to loan it to him. In those days we made maps with the number of the well, the date the well came in and the initial production on that well, and we had a perfect record, and as the field grew we reduced the size, and used to keep what we termed a "scout sheet" and that map I loaned to Judge Milling, and I believe he still has it, and the man who gave it to me was killed a few weeks ago, Walter Dickson, by a derrick falling on him. Judge Milling and Mr. Snell discussed with me what I had seen and what I knew about shutting off water from wells in 1908, '9 and '10; we talked in a general way regarding the number of wells. Our discussion was just in a general way regarding the field. What they were interested in was getting old records away back. I want to tell you now we had a fire in 1910 at Vivian and with the exception of a few things we grabbed up in our office, we lost all of our original transcripts. They were available at several offices of the different companies. I think they got some of the data from the Texas Company, if I am not mistaken. I told

(Testimony of John Bird.)

Judge Milling and Mr. Snell very frankly that I didn't see any cementing in 1908, '9 and '10, only the siphoning of cement and setting of surface casing. There was no plug method used in those days that I knew of or that I heard spoken of by anybody else.

I knew Walter George, Hearne Harper, Wesley Jordon, Fred Kyle, Harmon Mahaffey, D. C. Richardson, Walter G. Ray, W. C. Wolfe, and J. R. Crawford, at the time. I knew them when some of them were first starting out as roughnecks. They are not all operators. Some of them are still where they were years ago. They were all in this field at that time from time to time. They were in and out and drilled a few wells, and got out and come back and drilled some more. I don't know what those men have testified about this plug method in the early part of 1909; I don't know anything about their testimony. I know from conversations that I had with them that they claimed that that was the fact.

Q You have discussed this matter, have you not, of methods used for shutting off water from wells with many of the men and perhaps all of the men that have been mentioned, haven't you?

A No, I never discussed it with Billy Wolfe or Slim Crawford. Until this case came up I never heard of them using a cementing system; then I understood that they used it. It wasn't in common use in 1911. The first time I saw a plug used was in 1912—the latter part of 1911 and spring of 1912.

In 1908 they had water trouble in practically all the early wells around the lake. I could look up and dope out for you the names of wells that they were attempting to shut off the water in 1908. Nearly every operator had

(Testimony of John Bird.)

trouble with water. There was over 7000 wells drilled, and to pick out an individual well instantaneously is a difficult task.

Q Well, now, how about 1909? Can you mention any wells at which you were present and where you saw them shutting off or attempting to shut off water on?

A Well, I used to go from well to well, and sometimes I would get there when they were in trouble, and sometimes they would be going all right. As to picking out an individual well just right here now, what well would you want to refer to and I would tell you whether I was there or not. You ask me what well you want to know and I will tell you what I know about it. If I don't know, I will tell you I don't. Tell me the date it was drilled, what you want to know about it, and I will be glad to tell you. I can give you an inventory of the Caddo oil field right off the bat. State some specific well and if I don't know I will tell you. That's the best way to arrive at it. You are asking the questions in a blind method and you don't specify any particular well, so I can't tell you.

Q I am asking you and repeat the question for the sake of clarity if you can remember any well that you saw or that you were at during the time it was attempting to shut off water in 1909.

A They were working on a number of wells around Vivian, the Powell well, the Christian well, that Blackman well, and that's quite a number. Do you mean when they were setting the casing and finishing the well, or when they were drilling it? We have three water levels in Caddo. We have one at 92 feet, 385 and 960. The shallow wells between Vivian and Hosston produced oil any-

(Testimony of John Bird.)

where from 980 to 1020. They got water sometimes at 985, sometimes at 960, according to your location. It came in a big high ridge, and as you sloped off into the bottom your depths were shallower, and as you got onto the ridge like Bailey #1 the wells were deeper. Most of those wells in the shallow district made quite a little water. I have a distinct recollection of being actually present during the cementing of some of those wells. I was at the Barr #1. I was over at the Powell well, and at the Waukenspecht, and others I don't recall. I say if you state the well that you want to know about I can tell you whether I was there or not. I tried to get to all of them. It would be a task to recall just what I actually remember having seen in 1909. I can get you some dope on it. I made the rounds of the field and watched the operations, because we were interested in leases close to all these wells, and were buying and selling stuff, and we wanted to keep tab on them pretty closely. If a well was a good producer, our stuff was worth something, and if it wasn't it wasn't worth anything.

The Waukenspecht well was a failure down on the Bayou. The Powell well was drilled in 1909 by the Wolfe Drilling Company. I was there when they finished the well and the well wasn't cemented. They didn't cement it at all that I knew of. I never heard of them cementing it and I never saw any cement out there. I don't know anything about what they might have done. I was sitting right there on the Barr #1. They didn't cement that well. They put—that was the well that Jim Clark was on—they cemented that and put a sack of shale in it. There was no plug used there—I mean wooden plug. The

(Testimony of John Bird.)

first plug I saw, I saw it turned out in a machine shop by old Dad Walker for Bob Allison on one of the Stiles wells, and I went over and watched them. That was in the spring of 1911, I think it was. That was down in what we called Boyters Lane. I saw this plug over at the machine shop, because they discussed it and drew out the idea and Dad Walker had worked for me as a blacksmith, and he told me at breakfast time that he was going over to the machine shop and turn this plug, and that they were going to cement the well, and I told him I would drive him out there, and I spent the day out there. I testify positively that was the first time I ever saw a plug. It was new to me; that's the reason I went out to get the dope on it. I don't know that they actually made rough plugs by hand long before they made that machine plug. We made them roughly ourselves after that. I have whittled them out myself in the woods—chopped them out with a hatchet or axe. Mr. Allison got hold of the idea of the plug from some man who had seen this plug used in California. That was the discussion at the time. That was told me by Walker then. I would say it was along—that well I think came in in March, 1911. I can tell you by looking in this book. I will show you the picture and tell you the exact date and the initial production on that well. I think I have it in here; I am not quite sure. (Referring to papers) That is not the one; this picture is of the big one that came in in 1912; I thought I had a picture of the 1911 well in here, but I have not. I think it was in May that Mr. Walker showed me that machine plug and we had the discussion; it was in the spring of 1911 because it had been raining and pouring down. We

(Testimony of John Bird.)

had been almost shut down on account of April rains. The roads were bad for about thirty days.

Q Now, what other well were you actually present at in 1909 and observed any of the operation of shutting off water? I mean setting casing.

A Well, I have watched a number of them siphoning cement and mess the wells up. I never saw any cementing done until I saw this plug method used, outside of siphoning. I will look up the dates for you of those I was present at during the operation of setting the casing. I can give you a tabulation of probably a dozen, if you wish. I will write you off a list of the dates and whatever information I have, if that will help you any. There was a number of wells drilled in 1909, and if you wish any specific well I will give you a few of them of 1909 that was right in the vicinity of Vivian. Powell #1—that was in March, 1909. I am referring to a note book which I have before me. I kept books on these wells, and you want a specific date and the number of the well. Now, I don't carry figures like an adding machine. I am no freak. I want to give you the exact date and I will tell you the truth about it. I will tell you what I know about it. I put it down and brought it here for that purpose, and when I say I was on one of them I was on one of them too. I furnished this data to the big companies. They let me read it off to them. That is statistics. You can't expect a man to answer your questions off hand without having considered it.

MR. WESTALL: Let the record show that the witness has before him some note book and the question calls for his unaided recollection, and the record should further

(Testimony of John Bird.)

show that the witness had held the note book open before him during this entire discussion.

THE WITNESS: No, no, I just opened it just now. You may have this information, if you want it. We have referred to these scrap books and other books. I thought you wanted the reference and I didn't think it was—

MR. LYON: The notary is requested to note that there is on the table in front of counsel a scrap book of the witness containing newspaper articles and clippings of various kinds, all relating more or less to the Caddo field, but beginning apparently, so far as the date of items are concerned, around 1911 or 12. We have no objection to counsel inspecting the witness's scrap book if he so desires.

THE WITNESS; I would like to call Mr. Westall's attention to a drilling report with over a hundred wells, and I can't remember any individual well there, just to pick out, unless it is mentioned to me. I can run back to that well and tell you exactly if it is mentioned.

MR. LYON: The continuance of this line of cross-examination is objected to as an abuse of the privilege of cross-examination, as an attempt to evade bringing out the actual facts in question and as an unfair attempt to compel the witness to set forth a list of the wells drilling as far back as 1909 in a field where there were at least a considerable number of wells drilling. The witness has stated that if any particular well be referred to and he be given an opportunity to turn over in his mind the facts of that well, he can give what he remembers. He has also stated that he remembers a number of wells, but obviously it is unfair to ask him to recite each and all wells drilling

(Testimony of John Bird.)

in that particular year. However, we will ask the witness to answer the question of counsel at least to the extent of naming a number of wells inquired about as illustrations.

MR. WESTALL: Let it appear that after having asked the question to be repeated to the witness, and after the witness was instructed to put the note book aside he again took the note *hook* out of pocket and opened it.

THE WITNESS: I didn't even look at it. I was going to offer you this paper I had, and I have put the note book back in my pocket.

(Question read as follows: "I didn't ask you for whatever information you had. I asked you to mention from your unaided recollection, if you can, the wells that you positively remember that you were present at during the operation of setting the casing in 1909, and if you can't mention them specifically from your unaided recollection, I ask you to say that you can't.")

A The Powell well was drilled in 1909. Is that what you want to know? What do you want to know about that well? I ask you this, to state specifically what well you want to know about and I will tell you what I know about it. I want to go as I have some business to attend to, and you are stalling around. Tell me what you want to know about a certain well and I will tell it to you. Let's get down to business because I want to hit the ball. You can't get me mixed up on them for I will just tell you I don't know, and if you want to get some dope on it I will go get it. You already know the names and the numbers of these wells, and if you want to know something about them, ask me, and if I wasn't there I will tell you so. I was interested in watching the progress of all

(Testimony of John Bird.)

the wells around Vivian because we had invested quite a sum of money in the Christian Heights subdivision and it meant lots to us.

(Question re-read.)

THE WITNESS: I told you that I had practically watched every well around Vivian. Some things I seen and some I didn't. Now, what did you want to know what went on on that well, and I will tell you? I told you that I had been on the well. Now, what do you want to know what happened? A drilling operation is from thirty to forty to sixty days. I don't mean that I just set there from the time they started until they finished it. I scouted the well, if you know what scouting means. It was only about four miles around Vivian from where all the operations were going on in the Caddo field. There wasn't much traveling to be done. There were not very many wells; just starting in there. It was when the operations just began practically. I couldn't answer exactly how many wells were drilled all told in 1909. My memory is not an encyclopedia, but there were a number of wells drilled around there and a number of locations made. There were three or four wells drilled at a time around there. I couldn't tell you how many all told without making a reference to it. There was no thousand. I have seen times when there wasn't any drilling there, not a well drilling or a rig running. I have seen times when there was a hundred drilling. Now, what specific time do you want and I will tell you.

I visited quite a number of wells in 1909. There was a number drilling around Oil City, down at Mooringsport, out at Monterey, up at Caddo City, Pine Island, Lewis

(Testimony of John Bird.)

and Vivian. I expect I visited twenty-five or thirty wells or maybe forty wells and observed the operations on them in 1909. I am not quite sure. There was quite a number of rigs running. I don't think I visited as many as fifty wells. I put that forty as a big, long number, because that is a whole lot of wells. Some of them I didn't visit at all and I missed a few of them, say, one or two wells that nobody didn't know very much about. I tried to get the dope on everything. Those thirty or forty wells were all the wells that I knew of in that vicinity in 1909. That covered all the operations up and down from the Lake to what we called the Vivian field. That is an area about 20 miles by, oh, 8 or 10 miles across, according to how you went. Vivian is 33 miles from Shreveport, and Mooringsport is 20, and out to Monterey is about 7 miles, and then there was a number of gas wells drilling at Shreveport at that time that we checked. I have included all those wells within the 30 or 40 that I mentioned as having been visited in 1909.

Q How many times did you visit each one of those wells? Approximately.

A My, my man, what are you trying to get at? Gee whiz, that is childish. I have been out here in this field and I have been backwards and forwards to Louann, I couldn't tell you how many times, and if you want to know some specific thing that I did on some trip or some well, I will tell you. We didn't have any average number of times that we visited any particular well. I will give you an instance. In going to a well I would probably pass five drilling rigs and ask them how they were getting along, and then I would pass them again in the afternoon

(Testimony of John Bird.)

and ask them how they were getting along again, and then maybe I would eat dinner with the driller and ask him how he was getting along that night. I couldn't tell you all the different conversations and the number of times I visited them. We would get off, walk over and maybe get a drink of water and ask Jake how he was getting along.

Q When you were asked to specifically mention any of the wells that you remember in 1909 that you visited out of the thirty or forty, you have mentioned three, viz., Barr #1, Powell #1 and the Waukenspecht.

A I told you others, and if you want to know, please tell me what well you wish to know about and I will see if I can tell you. I didn't say I was unable to mention any more than those three wells. I can call you off a hundred wells probably you wouldn't be interested in if you want the names and numbers of them. You ask me what well you want to know about and I will tell you about it, and give you a little instance, if you want that. There is 160 wells on the Gulf that I scouted and 214 on the Stiles and Cunningham. Now which well do you want to know about? I can tell you about it by looking in my book.

Q I asked you yesterday if you knew the names of any of the members of the crew on the Powell well and the Barr well and the Christian well, and I believe you stated that you didn't remember without reference to your books. Have you since referred to any memorandum?

A No, I haven't looked up any. I knew nearly all the boys who were working out in the field there from one well to another. There is probably three or four hundred

(Testimony of John Bird.)

men working out in the field. I have mentioned three wells. Billy Wolfe had the contract on the Powell well, Slim Crawford was drilling on that well, I think, and Walter Ray on the Powell well. I was present when the casing was set on the Powell well. I guess there was forty or fifty people from Vivian that went out to see the casing set. Billy Wolfe was there and the crew was there. Slim Crawford was there. I don't know who was firing the boiler or anything like that. We didn't keep the dope on the drillers and roughnecks. I saw lots of people there. I remember distinctly seeing Billy Wolfe and Slim Crawford at the Powell well at the time the casing was set. Billy Wolfe bought his shop that he used to keep all of his tools at, and I sold him the property, and I used to see him every day, Searcy was out there. He was the cashier at the bank—E. C. Searcy. I think he is up around Vivian, or somewhere around there now. Frank Powell was out there. I think I saw him out there at the time the casing was set. There were two or three drillers that were hanging around town and several fellows that were trying to get jobs that I knew of walked out there to see what was going on, and nearly everybody that could get away would want to go out and see what the well looked like. Walter Ray worked on a number of wells around there. I do not remember the names of any other persons who were present at Powell #1. That ought to be plenty, I guess.

Powell #1 was not cemented. I do not remember the exact date when the casing was set on it. We got there when they was finishing the setting of the casing. They said they were through with it, and we stood around there

(Testimony of John Bird.)

and talked and came on back to Vivian. You can't actually see casing set because it is down under ground. They said they had set it.

I visited Christian #1 well I guess thirty or forty times. I was present at the time the casing was set. I went over to Mrs. Christian's house and asked her how they were getting along with the well and told her I was going out there that afternoon. We had several fellows who went out there. They were setting the casing when we got there. I understood they set that casing in gumbo. I understand it by talking to the men working on the well and men scouting the well, just like you would ask anybody. They told me that that is the way it was set. I accepted that and just went ahead. The well was finished and I went on then. I didn't see any cement set.

Q You don't know, as a matter of fact, of your own knowledge, whether they used a plug in that well or not, do you?

A There wasn't any plugs used at that time. They never used plugs for three years after that time. I arrived at that well after dinner. They were setting the casing then, and when they set the casing down on the seat they fiddled around then and said it was all right, and I came on in. I didn't sit there with my eye in the hole. There wasn't any secrecy about what they were doing. I sat around on a log and talked to different fellows just like you would do. They couldn't have put no plug in there and I didn't see no plug. If they had put a plug in there I would have saw it. They used to pile gumbo up on the side of the slush pit and save it, and

(Testimony of John Bird.)

when they got ready to set they would pump the gumbo in for a seat.

Q That doesn't answer the question. You said a little while ago that somebody told you that the casing was set in gumbo, that you had a talk with someone.

A Yes, I was with J. L. Clarkson, who rode out there with me. He was with the Louisiana Real Estate & Development Company, and he went out with me, so he arrived out there the same time I did. No one connected with the well had to tell me the casing was set in gumbo; I could see what they were doing.

Q A little while ago you told me it was set in gumbo because there was a discussion after the casing was set.

A I said when the casing was set and they said they were all set, I said, "Clarkson, let's go home." I couldn't remember the conversation or anything else. The crew all talked around in a general discussion like people talk anywhere where they are working on a well and going ahead with it. I don't recall right now any particular person connected with the well who said that that casing was set in gumbo. I told you that I saw the gumbo myself. I didn't have to ask anybody to tell me about it. I had enough savvy to see what they were doing.

Hearne Harper was on that well at that time; he was in partners with old man McCann and they drilled a number of wells. Walter George was working on the well. I don't remember whether I asked him or not, it has been so long ago. I knew nearly everybody that was working out there. I think Fred Kyle worked on that well. I used to see him every day. He boarded at the same place I did, and so did old man McCann. We used to take our meals

(Testimony of G. B. Bryant.)

there when we wasn't in Shreveport. Harmon Mahaffey was there. I didn't know him very well. He just came there. I know him now very well. I didn't know him well enough to talk to him like I did the rest of the gang. I didn't talk to him about cementing this job; there wasn't any cementing job there. They didn't set no plug in that well. They are kidding you. They didn't know how to use a plug then.

Q Do you mean to say that Hearne Harper, Walter George, Fred Kyle and Harmon Mahaffey and others who have sworn positively that they did use the plug on that well are only kidding us, as you say?

A It looks like they are, because nobody else was using it in those days. It wasn't within the range of possibility that they used one when I was not there.

Q I want to ask you how many times have you heard of them using sacks of shale for cementing outside of that one instance that you have referred to?

A That method wasn't considered good and they got off of it.

TESTIMONY OF G. B. BRYANT, FOR PLAINTIFF.

G. B. BRYANT,

called on behalf of the Plaintiff, being duly sworn, testifies:

My name is G. B. Bryant. I live at Calion, Arkansas. I am 53 years old. I am a well driller. I started at the working of the well business in 1903 as helper on a rotary rig at Saratoga, Texas. I worked in Texas until the close of 1908. I helped drill one wildcat well during that time

(Testimony of G. B. Bryant.)

at Welch, Louisiana. I worked at Saratoga, Batson and Humble in Texas, and during that time I helped drill a wildcat well at Hull, about the first well that was ever drilled there. It was for the Sun Company, and I don't remember just what year it was. It was sometime between 1903 and 1908. I worked at those different fields in Texas as they were discovered and drilled, except Humble. I wasn't in Humble at the early days, but I worked there in the later days of the field. I came from Humble to Louisiana. I did not work during all this time in Texas as a helper on a drilling rig. I was drilling; I went to drilling in Saratoga. I did not have charge of a drilling crew from then on all the time. Sometimes drilling would run short and I would go back as a helper, but I went to drilling in Saratoga. I drilled a number there too.

I can tell you all of the companies I worked for in Texas before going to Louisiana in 1908. I first went to work in Saratoga working for some contractors by the name of Daley & Moore, contractors for the Southern Pacific Oil Company. Then I worked for the Gulf people, and I worked for them a couple of years, and then I went to work for the Sun Company. I worked for the Gulf some in Saratoga and for the Sun in Saratoga and for the Gulf in Batson. I worked for the Sun Company again in Humble and I was working for them when I went to Louisiana. I went to Louisiana the last of December, 1908—the last day of December, 1908; I went to Mooringsport, but I went to work at Oil City. They are both in the Caddo field. The Caddo field was just starting up pretty good when I went there. The Gulf Company had

(Testimony of G. B. Bryant.)

discovered this Mooringsport field there, but there had been quite a bit of drilling done before that time.

The first work I did up there was for old Sam Hunter of the Caddo Oil & Gas Company. Billy Wolfe had charge of it. I set up a rig on a well that they already had drilled. It had been flowing, you know, and they wanted to bail it and clean it out some. That was the first work I done in the field. That was in January, 1909. I didn't work there but a few days and Billy Wolfe had bought a rig and was starting out to contracting, and I went down with the driller and went to help him on that rig. I did not work on the drilling of the well for Billy Wolfe. I didn't work there more than ten days. I got a job with the Gulf people under Melat at Mooringsport. I reckon I must have been with the Gulf Company a couple of months, drilling. I started drilling nights, and they finished the well in the daytime.

At that time I knew Roger Canfield. He came there a short time after I did. I was there sometime before he was, but he came there while I was drilling that well. He worked some on that well. He was kind of an extra man and just worked here and yonder. He wasn't a steady driller on that job. He was anywhere they needed him. I had seen Roger Canfield before that in Texas. To the best of my recollection they called that well the Nunley well, but I don't remember the number of it. I know how the pipe was landed or set in that well. We didn't use any cement on the well at all. Up to that time I had never been on a well that had been cemented. That Nunley well was started in January, and must have been finished in February some time, of 1909. After I set the

(Testimony of G. B. Bryant.)

6-inch and went to drill the well in, the 6-inch followed me on down, and we had to put on another joint and put clamps on it to hold it to keep from following. In other words, I had trouble with the seat on that well; it wouldn't hold. Then we drilled the well in and finished it up.

After that I went to work back at Oil City for Billy Wolfe. I drilled nights against Mr. Crawford. That well was down the railroad from Oil City, between Oil City and Mooringsport. That Crawford was called Slim Crawford. I don't remember his initial. The same as Crawford & Sebastian now here. I just don't remember his initials. I don't remember how long it took to complete that well. In them days they taken a good deal longer to drill a well than it does now. It must have been longer than thirty days. The pipe was not set in that well by cementing. I would judge that well was about a mile, maybe a mile and a quarter, might have been a mile and a half below Oil City on the railroad; I wouldn't say just sure, but somewhere about half way between the two places. It was pretty well up in the spring when that well was drilled; I couldn't say whether it was March or April or May. I know it was in the spring of 1909.

After completing that well I left the oil fields and went away—well, I didn't stay until it was finished. By finished I mean drilled in and made an oil well. It must have been pretty late up in the year, July or August, somewhere along there when I left the Caddo field, in 1909. I wouldn't say just positive what the date was; it was late in the summer. I went into San Antonio looking at the water well business. I stayed away from the Caddo field about two years. When I came back I stopped at Humble

(Testimony of G. B. Bryant.)

and worked awhile, and then I came back to Louisiana late in 1911.

Now I am familiar with the plug method of cementing wells. I didn't know of it until after I came back to the Louisiana field, but they were cementing in general everywhere by the plug method when I came back to the Louisiana field, that is, they were cementing in 1912. I never heard of that plug method of cementing when I was in the Caddo field in 1909. I had never heard of it being used before I came to Louisiana in the last of 1908.

Q While you were in the Caddo field in 1909, what was the custom, if any, among the workers there as to discussing the methods that were being used to land or set pipe?

A Well, you would usually hear of anything if there was anything new going on in the oil field—any new custom you would always hear of it.

I knew Harper & McCann. I knew Mr. Harper over in Texas before I went to Louisiana in 1908. While I was in the Caddo field in 1909 I did not hear or know of either Billy Wolfe or Slim Crawford or McCann & Harper using the plug method. McCann & Harper was contracting for the Gulf at the time I was there working for them in 1909, and if they done any cementing I never heard of it. I don't think the plug method was used in the Caddo field while I was there in 1909. It

me

looks to/like I would have heard of it if it had been used. I was working for the Gulf people there at that time, and they would have heard of it and used it if it had been known. They were doing more work at that time than

(Testimony of G. B. Bryant.)

anybody else, and they were in need of such an improvement more than anyone else. I never heard of it at all at that time.

While I was in Louisiana in 1909, I believe the Texarkana well was the name of the well where Mr. Crawford worked, for the Gulf Company; he was working for Billy Wolfe. I think when we went to set the 8-inch on that well we had some trouble about the rock, but I don't remember clearly what it was. I think we pulled out and drilled through the rock and set it deeper. That well was not cemented by the plug method. Now, understand, this was the well now that me and Mr. Crawford worked on, and I wouldn't be real positive about the name of it, but I think it was the Texarkana well. There was no cementing done on that well that me and Mr. Crawford worked on. I set the 8-inch casing myself, and Mr. Canfield was there the night that I set it, and there was no cement used. Mr. Canfield was assistant under Mr. Fred Melat at that time, but later on became drilling foreman. Mr. Helat was drilling foreman for the Gulf Company.

ON

CROSS EXAMINATION

Mr. Bryant testifies:

I am not employed right now. The last work I did I worked for Williams & Moore, out at Calion. I first came to El Dorado for Mr. E. M. Brown of Shreveport to drill a wildcat well in 1920. Outside of taking a trip to South America I have been here five years. I have been drilling wells around here in this field in different places. I worked at Louann, I worked at Smackover and at Griffin. I was drilling in 1920, and continued up to the present time. I

(Testimony of G. B. Bryant.)

haven't followed anything else, haven't done anything else. I don't remember what wells I worked on in 1918. I was down in Bull Bayou field. I worked on two different wells there; I couldn't tell you what names they was. It was in the winter time. I was away from the field in the early part of 1918; I was in Mississippi. I worked in the shipyards some in Mississippi for several months. Besides working in the shipyards and drilling I farmed. I was raised on a farm up to 1903. I have not done any farming since 1903; I haven't plowed a furrow. It was in the fall and winter of 1918 I worked on the wells I have spoken of. I don't remember as I worked on any wells in the summer of 1918.

In 1917 I was in Mississippi part of the time, and part of the time I was in Louisiana. I was drilling a well in Mississippi.

I worked on different wells in 1917. I worked on one below Shreveport. I worked on two wells; I don't remember the name of either one of them. They were for the Atlas Oil Company. It was in the early part of the year 1917. I wouldn't say that I have a good recollection for dates. I haven't trained myself up to remembering dates. I can remember very well. I haven't kept a diary or anything like that. These were gas wells that I worked on in 1917 down below Elm Grove for the Atlas Oil Company. One was out from Elm Grove and the other was at a place called Day. I reckon I ought to say I can remember and go back those different years and remember the different wells, because I remember I went from those wells over to Mississippi and shipped my rig over there

(Testimony of G. B. Bryant.)

in 1917. I came in below Mansfield then in 1917 and drilled a well down there.

In 1915 I was on the Lake up there, different places. I wouldn't say I can remember at this time where I was. I was in the employment of the Atlas Oil Company, and I worked part of the time at the Lake and part of the time down Red River and at Gahagen, but I didn't come up here to give a general history of my oil field life. I can't give it to you without thinking about it. I would have to have time to think it over. I could do it if you give me time to do it, but I can't do it on the impulse of the moment. I would like very well to have a history of my oil field life and the wells that I worked on, but I haven't it. Anything where I started in at I have got a very clear memory, I mean a new well. You might ask me about some of these wells I just worked on at Louann, and I might not be ready to give you the ready information right quick and then. When I started working on these different wells I could remember each well. I come up here to Calion in 1920 and started that well on August 20th. I got a cut on a big tree there, and I could go and look at it. I can give you that information quick. I didn't cut any memorandums on different trees. I told you a little while ago that I didn't keep any diary. I don't believe you want to know anything about cementing, I think you just want a history of my life.

In 1914 I went down the Red River and worked on a well for H. J. Parker. We drilled a well in—the first well that was drilled on that side of the river. That is in 1914.

I am not being paid; I haven't been offered a copper cent by anybody for testifying in the case. Hasn't any-

(Testimony of G. B. Bryant.)

body offered anything and I haven't charged anything. However, I don't care to be questioned about little things that I have done that long time ago. It is not difficult for me to remember about this cement business and that is what you want to know. It is not difficult for me to remember about the cementing business, for that is a very important thing, and any man should remember the first well he cemented. It was entirely new to me until I got it from somebody that had had experience with it. I haven't kept any record of what I did in the years from 1909 on each year. To be sure that I can remember everything that passed, I can't say that I could, but things of any importance that occurred I can remember.

Q In other words, if you were trying to tell what happened in 1914 and 1915 and 1916, you might, unless you had a chance to refresh your memory, easily make a mistake as to a date, might you not?

A I have told you that I went down Red River and drilled that well. Didn't I just tell you that I drilled that well for Mr. Parker in 1914? That was the year the Germans declared war against the world. It was in August, July or September.

Q Now take 1916, for instance, you couldn't start to say what you did in January, February, March or April, 1916, without looking at some memorandum or refreshing your memory in some way?

A If there was something interesting that occurred during that time I could. I don't suppose there is a man living that could just take a year and tell you everything that occurred during that year. If there is such a man, I would like to see him. I was working in the oil fields in

(Testimony of G. B. Bryant.)

1908 and 1909, and as I told you, I came to Louisiana then and there is where the cementing first started that I ever knew of.

Q Did you look up these dates?

A Only by memory of what I had of it. I remember that I arrived at Shreveport just like I told you, on the last day of December, 1908. After I got there, in 1909 the first well I worked on was that Hunter well I told you about setting up the rig and bailed it and it went to flowing again. We wanted to rebail it and get it to flowing again. That was the first work I did in Louisiana.

The next well I worked on was a well that Billy Wolfe had bought a rig and went to contracting on. I couldn't say for sure what the name of that well was, but he was drilling a well for the Gulf. I couldn't say how long it took. It took a good deal longer then than it does not—I suppose thirty or forty days. That was in January, the one for Billy Wolfe. That was the first one I worked on after I bailed the well for Mr. Hunter. I only worked there a short time—ten or fifteen days.

The next well I worked on was a well for the Gulf people. I am positive where that was located. It was very cold weather when I worked on that well. There was a big snow and freeze when I was working on that well. It was the last of January or first of February.

The next well I worked on was back up at Oil City. I don't remember just how long I worked there.

Q How do you happen to fix the time when you left the Caddo field in 1909?

A Well, I told you I left the oil fields and went down below San Antonio to work in the water well business.

(Testimony of G. B. Bryant.)

My knowledge tells me that. Further than that, I believe I have got some books at home that would show that, but I didn't look at any. Mr. Canfield and I haven't discussed any of these dates at all. He didn't tell me they were anxious to prove what methods of cementing were used in 1908 or 1909; he didn't ask me anything about what they used in 1908 or 1909, either. He is not the one who told me first that they would want me to testify. I believe Bob Holland was the man who first told me about it. He is an oil man around the oil fields here. I think he has done some drilling. He was roughnecking on this well of Billy Wolfe's that I was working on, and that is how he come to tell me about it. Canfield wasn't working on it at all. And I believe Cy Blount is the next man who told me about it. He told me that if there were any old men that had worked back in the early days that knew about the cementing that they would like to know about it up here. I don't believe Canfield mentioned it to me until after I was up here and then he walked into the room. I came up here on my own accord. What I had to tell was just what I knew about it, and I haven't got anything else to tell about it. I don't know as it was explained to me what they were trying to prove, before I came up to this room, any further than they are trying to protect their rights, their patent rights, is the way I understand it. I don't remember that anybody asked me whether I could testify whether the plug was used in 1909, before I came up here to testify. I didn't have any conversation with Mr. Lyon or any of these gentlemen. I didn't know this man up here until I came up to the room. I told you two men had talked to me about

(Testimony of G. B. Bryant.)

whether cementing was done in 1909, Bob Holland and Cy Blount. They had both been up here and they knew that I had worked there in 1909. They didn't ask me whether or not I remembered whether they were cementing in 1909. That didn't concern them. They knew that I was working there on that well, and that they were not cemented. Holland knows, as well as I did, that they didn't cement the well. When I came up here I knew whether I was going to testify to what was done in 1920 or 1905. They told me that they wanted to know if I knew of any cementing being done before 1909.

Q A little while ago you said there wasn't any mention of any date before you came up here, didn't you?

A I ain't got any more to tell you. I tell you that right now. I have told you all that I know about it. I have told you the truth and I haven't told you anything crooked. I haven't crossed anything and I don't intend to cross anything, I tell you that right now. If you are trying to get at the point that Holland and Cy Blount persuaded me to come up here, they did not.

MR. WESTALL: It should be noted of record at this time that there are a great many remarks being made outside of the record which are impossible for the stenographer to get, as the witness has constantly interrupted questions and by constant talking during the time that I am attempting to put the questions, has interfered a great deal with the examination.

MR. LYON: We stand on the record and object to the statement as incompetent and not founded in fact.

Q Now, you say you are willing to admit, are you, that they did mention 1909 to you before you came here?

(Testimony of G. B. Bryant.)

A I done told you all I knew about it now. Holland knew that I worked on the same well that Crawford did.

MR. WESTALL: We move to strike out the answer as not responsive to the question.

THE WITNESS: I gave an affidavit or statement regarding this matter on Thursday, the 17th. I don't think it was in this room. It was in this building. I believe it was this lady here (pointing to the notary) that I have the statement or affidavit to at that time. I believe Cy Blount was up in the room, maybe Mr. Canfield, and Mr. Bird. I don't think there was any one else. I don't remember that Mr. Lyon was here. Mr. Halliburton was here, but I don't think Mr. Lyon was present. I just made a statement to Mr. Halliburton. I never took any oath to the affidavit; I don't think I did.

Q Let me ask you what methods were you familiar with for shutting off water from wells in 1908 and '9?

A Well, we always set our casing in gumbo if we could get it, and that would hold the casing, and sometimes they used what they called packers. If they got water below the casing they would set another string of casing and use a packer, something like that. They had different kinds of packers. I didn't understand the siphoning method. My remembrance is they just poured it on the outside of the casing and let it go down. I never saw any of it done. My understanding is that they just poured it on the outside of the casing and the cement being heavier than water it went down.

I never talked to Mr. Snell about this case; I never met him.

The first time I heard of cementing an oil well was in the latter part of 1911 or in 1912 after I came back

(Testimony of A. G. Kelly.)

to Louisiana. They didn't do any of it in Texas. Everybody was cementing when I came back to Louisiana. They had been at it sometime before I got here. I don't know whether they started in the last of 1910 or 1911. I couldn't say about that date. When I came back to Louisiana and went to work, everybody was cementing.

Q Did you ever know of a method of cementing by using a sack of shale as a plug or indicator?

A Well, only when they put the plug in a great many of them would put in a sack of shale on top of the plug. I have done that. That is the only way I ever saw a sack of shale used, was on top of the plug. I use that sometimes and sometimes I don't use it, and sometimes I bundle up a bunch of sacks and don't use any shale.

I couldn't say that I had any knowledge of what they were doing in 1909 from July on in the Caddo field. After I left the field I didn't keep any right close records upon it after the latter part of 1909. I left in July or August, 1909, somewhere along there.

Q Are you sure it might not have been in June of 1909 that you left?

A Well, I just as well say it one way or the other. I know it wasn't in the fall of the year; it was getting pretty warm. It wasn't in May or June; it was later than that.

TESTIMONY OF A. G. KELLY, FOR PLAINTIFF.

A. G. KELLY,

called on behalf of the Plaintiff, being duly sworn, testifies:

My name is A. G. Kelly. I am fifty-one years old. I live at Shreveport, Louisiana. I am an oil field worker.

(Testimony of A. G. Kelly.)

I work in any of the departments of crews engaged in drilling oil wells. I first worked on a well drilling crew in 1901, I should judge, at Spindle Top, in Beaumont, during the Spindle Top boom. I have been in that business ever since. After the Spindle Top boom I worked at Jennings, Louisiana, known as Marmeau Prairie at that time. I went from there to Welch during the Welch boom, and then I went to Belle Isle, wildcatting, of course. From there I went back to Jennings and Marmeau Prairie, all the time working on a well drilling crew. Then I went to Sour Lake during the Sour Lake boom, and from there to Batson Prairie during the Batson boom. I went from there to Humble during the Humble boom, and then to Shreveport. There I worked in the Caddo field in northern Louisiana. I worked on a drilling rig there, for about four years, I should judge. From there I went to Mexico, still in the well drilling business, and stayed there about four years. Since that time I have been in the well drilling business in different fields in the United States, and that is my present occupation.

I left the Caddo field and went to Mexico in 1910, I should judge in the fall of the year, I should say October.

While in the Caddo field I worked for Howard R. Hughes, contractor, and for the Producers Oil Company nearly all of the time I was there, except that one well for Hughes. I worked on different wells all around the Caddo field. The Producers Oil Company was the biggest operator in the Caddo field from the time I went there until I left for Mexico. The Gulf and the Standard were the next biggest operators.

(Testimony of A. G. Kelly.)

I know how they were setting pipe in the Caddo field during the time I was there before leaving for Mexico. They were having trouble with water breaking into the wells; that was a serious problem there. Their objective was always to set in gumbo. We reduced the hole and sometimes *wet* with a cut off joint and sometimes set with a shoe. For surface casing they set 10-inch, and sometimes 12½ at about 60 to 80 feet, and 8-inch casing at 600 to 800 feet, and 6-inch casing—I forget what depth they went with that, but that was the final casing going to the pay. The 6-inch served as the water string, that is, to exclude water.

I knew McCann & Harper in those days, and Billy Wolfe, very well. I knew J. R. Crawford, sometimes known as Slim Crawford. The Caddo field in those days was a rather restricted field. I am quite sure I was well acquainted with the different workers. Everyone around the eating table in those days would tell their troubles that they were having on their respective jobs. It was constantly discussed and how much gumbo they set in; whether they had a good or bad job, frequently having to pull casing and reset. Prior to my leaving for Mexico I had known them to cement the surface casing in the Caddo field by pouring it around the outside and picking up the casing so the cement would flow to the bottom of the string, and set the string down in the casing.

I am familiar with the plug method of cementing wells now. The plug method I refer to consists of setting the plug in the hole first the diameter of the casing and pouring in your cement mix on that, and when your mix

(Testimony of A. G. Kelly.)

is all in that you intend to use you put your second plug on top of that and then put your pump on that.

Q When did you first know or hear of such a method of cementing?

A Well, we discussed it in Tampico, Mexico, while I was there after leaving Caddo. I never knew of it or heard of it while I was working in the Caddo field. I did not hear of any method of cementing the water string or any other string while I was working in the Caddo field, in which a plug was employed or in which the cement was forced by the pump down the pipe. I helped set a good many strings of casing, and if it had been done it would have been done on the jobs on which I was employed. If there had been anything radically new like that then used there, it would have been discussed among the men.

ON

CROSS EXAMINATION

Mr. Kelly testifies:

It was 1910 in the fall of the year, I should judge October, when I went to Mexico; I know it was in the fall of the year. I was working in Caddo in 1908. I think I remember the wells I worked on in 1908. The Evans well of the Producers Oil Company, and I worked on the B. & A. for the Producers, and I worked on the Pine Island well. I am not so sure the name of that lease, but it was for the Producers Oil Company. That is about all the wells I recall now that I worked on in 1908.

In 1909 I worked on the Murray #1 for the Producers, and worked on another Pine Island well for the Producers, I think they were called the Watkins, if I

(Testimony of A. G. Kelly.)

am not mistaken. I wouldn't be so sure about that. It was for the Producers. I don't recall any others now. I worked on the Murray #1 well in the spring of the year; it was quite cold, I remember that. After that I went to Pine Island. I think after the Pine Island job I went back and worked on some of the older wells. The first one on Pine Island was in the summertime and the second one was in the summertime; the weather was very good. They shift crews about from one location to another without completing the first job that you are on, so that it is rather difficult at this time to remember just what wells I worked on in the fall of 1909; I couldn't very well tell you that. I remember these others, the Murray and the Watkins, because of the weather conditions. The Murray was in the winter. Murray #1 of the Producers was south of what is now Oil City, right alongside the railroad track.

I never heard of a method of cementing using the single plug instead of two plugs until I heard of it in Tampico, Mexico, somewhere about 1911 or '12, we discussed it in there from the boys coming from California and from elsewhere in the States. I don't know whether it was early or whether it was in 1911 or 1912.

During 1909 I was a helper and a driller, sometimes helped and sometimes driller. During 1909 I stayed at Oil City. I never heard of cementing using a sack of shale as an indicator. I never heard of that method at all.

I don't know as I could state how many wells during 1909 I was actually present at during the setting of the six-inch casing. It took quite a while at those times to dig a well, sometimes several months. Let's see, I left

(Testimony of A. G. Kelly.)

there in '10. I am quite sure I was on Pine Island in 1909. We set casing on one well there something like three times to overcome water trouble. I couldn't specify positively the date and the year. I don't find it difficult to remember what happened at these different wells so long ago; it was part of the routine of my labor; it was so vigorous that you don't very well forget it. I am quite sure I was in Pine Island in 1909. I could be mistaken as to that year, but I am quite sure I was there sometime during 1909. We were transferred back and forth.

It could be within the range of possibility that I may be mistaken as to the year these wells were worked on that I worked on, but I made out most of the reports on every well I worked on, whether I was a helper or whether I was a driller, and that called for a daily usage of the dates and they naturally impressed themselves on me. I haven't examined any memorandums or data or logs of wells or anything to refresh my memory; I haven't been around the Producers in years. I am sure it was 1910 that I went to Mexico; I am quite sure of that. I couldn't very well be mistaken on that date.

The only method that I knew of of shutting out water in those days was setting the casing in gumbo. Using a packer was done after the casing was set, as a secondary thing usually. You set your casing in the ordinary manner at the depth you are supposed to go in gumbo, and after bailing it if you find out that you haven't cut off your water you pull this casing and re-set it sometimes using a packer. By pulling the casing I mean taking it out of the hole. I knew of the use of the packer in 1908

(Testimony of A. G. Kelly.)

and 1909 in the Caddo field. It was used extensively; it was used eventually on all of the wells.

After going to Mexico I returned to the Caddo field sometime in 1914.

I am not employed at the present time. My expenses for my time spent in giving this testimony were not paid me. I was employed up until last Friday with the Gulf Refining Company. Before being called to testify here about this case some men down around the Randolph were discussing it, and I think Mr. Bird asked me if I would come up here and see Mr. Halliburton. I am a friend of Mr. Bird. I talked to the drillers and oil field workers that were down around the Randolph Hotel. We have nicknames in these oilfields. One of them I talked to is Measles; my own is Dingbat. There was Fatty Ramsey and many others, and there are not very many men in this place who were in the fields at that time. I intend to stay in the oil field here now.

(All exhibits referred to in the foregoing depositions received in evidence and denominated as indicated in the depositions.)

TESTIMONY CLOSED.

STIPULATION

STIPULATED that the foregoing Statement of Evidence, Volume 1 of which consists of pages 1 to 480 inclusive, and Volume 2 of pages 481 to 893 inclusive, having been heretofore lodged and filed in the Clerk's

Office April 14, 1929, and withdrawn under stipulation and order of court of March 19, 1929 for the purpose of making corrections agreed upon by the parties, having now been corrected in accordance with such stipulation, may now be filed as a true and correct Statement of the Evidence, as part of the record on appeal in said cause, subject to correction if any errors should later be found therein.

Dated this 22nd day of April, 1929.

Frederick S. Lyon

Leonard S. Lyon

Henry S. Richmond

Attorneys for Plaintiff-Appellee.

Westall and Wallace,

By Joseph F Westall

Attorneys for Defendant-Appellant.

[Endorsed]: Statement of Evidence. Lodged Apr. 14, 1928 R. S. Zimmerman, R. S. Zimmerman Clerk. Filed Jun. 26, 1929 R. S. Zimmerman, Clerk, by Edmund L. Smith, Deputy Clerk.

[Title of Court and Cause.]

STATEMENT OF EVIDENCE

UNDER RULE 75 ON APPEAL FROM FINAL DECREE, BEING EVIDENCE BEFORE MASTER ON ACCOUNTING.

Los Angeles, Cal., April 24, 1928. 10 A. M.

(Appearances: For Plaintiff, no counsel. For Defendant: Joseph F. Westall, Esq.)

(Defendant produced, in accordance with order heretofore entered, all of the books and records of the Owen

Oil Well Cementing Company relating to subject of oil well cementing. Also a complete audit of the business of the company.

MR. WESTALL: In making this report, showing the information requested by the order, it is to be understood that we do not admit that any of the moneys received for oil well cementing in any way were the result or the effect of the infringement found by the Court. And we now, and shall later, set up as a standard of comparison what has been known as the no-plug system of cementing, the contention being, as shown by the audit, that we charged the same (2) amount and received as much benefit from the use of the old prior art no-plug method as we did from the patented method in suit.

(Books produced are as follows: Deposit book of the Union State Bank of Long Beach; stub check book of the Union State Bank; all cancelled checks of the First National Bank of Long Beach, and all check stubs of the cancelled checks; also other cancelled checks and deposit book of the First National Bank of Long Beach; work sheets of the Owen Oil Well Cementing Company, being reports of each job of oil well cementing; also ledger and journal of the Owen Oil Well Cementing Company. Said records show all activities of Owen Oil Well Cementing Company from the time it went into business up to the time of quitting when the injunction of the Court was issued.)

(Testimony of A. A. Perkins.)

May 29, 1928. 10 A. M.

(Appearances: Henry S. Richmond, Esq., for Plaintiff; Joseph F. Westall, Esq., for Defendant.)

(7) (Stipulated that the testimony of A. A. Perkins, William C. MacDuffie, Paul Paine and L. J. Whitney in the accounting before Special Master C. C. Montgomery in the cause entitled Perkins Oil Well Cementing Company vs. Wilson B. Wigle, F-70 Equity be received in evidence in this case with the same effect as though those four persons appeared in court and testified in this cause; that the conditions of affairs in the period of this accounting is the same as it was during the period of accounting in the Wigle case; and that the testimony of the witnesses would be the same if given now as it was when it was given in the accounting in that case. It is further stipulated that the defendants will be allowed to put in testimony in rebuttal to that of the testimony of the said witnesses, A. A. Perkins, William C. MacDuffie, Paul Paine and L. J. Whitney as given in the Wigle case F-70 Equity. It is further stipulated that this testimony shall be marked 'Plaintiff's Exhibit 1' on accounting and the same was introduced into evidence."

A. A. PERKINS,

called for Plaintiff, sworn, testified as follows on

DIRECT EXAMINATION

by Mr, L. S. Lyon:

My name is A. A. Perkins. I am the president of the plaintiff Perkins Oil Well Cementing Company, and am the A. A. Perkins who testified in this case before Judge Trippet. On the 1st day of May, 1921, I was

(Testimony of A. A. Perkins.)

employing the method of cementing oil wells described in the letters patent in suit in California. I was working through the plaintiff corporation. The operations of the Perkins Company covered all of California at that time. We had camps or trucks at different places. We had them at Santa Maria, at Ventura, at Coalinga, at Taft, at Whittier. At Whittier is our main plant, where we have a machine shop, where we repair our trucks, and we always keep enough outfits at each one of these plants so that there is no question but what when a man wants an outfit we can furnish it. An outfit is a truck with pumps and everything—mixing boxes and everything to do the work with, that we send out on every job. We receive calls at these operating stations from the companies that want cementing outfits. When a man was ready for a job he called up this plant, and there is a big board up there and it is put right down on the board—such a well to be cemented at such a time. At four or five o'clock or midnight, or whenever the pipe was landed, we were to have a truck there or an outfit there ready to do the work.

We furnished two men to do the actual cementing operation; they were employed by our company. They were expert cementers,—one expert cementer and a truck driver. We would have a telephone call or a call from the field to have a truck out there at a certain time, and our outfit would go out and would connect with the well and perform the operation and then leave.

We have either 20 or 21 of these outfits in California, I am not just sure. The cost of one of those outfits is between \$8000 and \$9000. At each one of the

(Testimony of A. A. Perkins.)

operating stations we have a garage to take care of these trucks, and we have houses for the men, for three, at our camps at Huntington Beach, Taft and Torrance.

I don't think from May, 1921, on we have given this service at all times to the oil fields in Southern California, at Long Beach, Whittier and Huntington Beach. I don't just remember what the date was when the Long Beach and Huntington Beach fields came in, but it was either that time or shortly after. As soon as the fields were ready we were there with our station. We installed an operating station in Long Beach. It is not the same character as I have described at Whittier; at Long Beach we rent a garage to hold our outfit; at Huntington Beach we built *on*.

From 1921 on to the time this injunction was served in this case, approximately 90 to 95 per cent of the cementing operations in these fields were performed by our company; but afterwards it was not quite so much. Our company had been conducting this cementing business under the patent in suit in the oil fields of this State from 1910 on. We would install a station or give that service to every field as it was brought in in this State.

Since 1910 we have done very nearly all of the cementing of wells for the Standard Oil Company of California. Once in a while a dump bailer or something like that, where they wanted to dump a little in, or something of that sort; but on regular work we have done all their work. We have done the work for the Shell Company of California I think about 6 years or 7 years, somewhere along there; I couldn't tell just the date. I could by the books, I could tell just exactly. That is the

(Testimony of William C. McDuffie.)

best of my recollection. We have done the work for the Associated Oil Company, all of their work, about 6 or 7 years.

We have a standard charge of \$250 which we have maintained during this period of time for this cementing by the method described in the patent in suit. I couldn't say just positively how long we have maintained that charge, but according to my best recollection it is ever since we started in the business. We did give 10 off for a while, but when the material came up and we had to pay more we took that off. That was during the time of the war. Since May, 1921, we have had one standard price of \$250 with this outfit. There are additional charges for truckage. We give 30 miles free; all over 30 miles is 25 cents a mile for the truck and 10 for the car. That is on long trips. The cementer goes to the well in a separate car from the truck. That is a tender for the truck.

In addition to our field stations we maintain our main office at 506 Union Oil Building.

(Witness temporarily withdrawn.)

WILLIAM C. McDUFFIE,

called on behalf of the Plaintiff, sworn, testified on

DIRECT EXAMINATION

by Mr. Lyon:

I am the William C. McDuffie who testified in this case before Judge Trippet. I testified on April 24, 1923, before Judge Trippet, that I was the general field superintendent of the Shell Company of California. I am now vice president in charge of production. That includes the

(Testimony of William C. McDuffie.)

cementing of wells for the Shell Company. I have been personally familiar with the cementing of wells by the Shell Company during the entire period of service with the company, I should say some eight or nine years; I don't remember exactly.

I have had experience in fixing royalties for the employment of patented inventions. My understanding of the Perkins patent is that it is a patent covering the use of plugs in pipe. Between the plugs there may be cement. The plugs are in the pipe and the use of cement is either ahead or behind the plugs; in other words, the use of a barrier, either in front or behind the cement, for putting the cement behind a pipe into a well. It is quite possible that I could best illustrate it. In describing the Perkins process I would describe somewhat in detail what happens. We will assume that the well has been drilled a depth of 1000 feet and that a primary or conductor string has been inserted in the hole in the ground and it has been cemented. Let us say that has been cemented and that we then proceed to drill, and drill a hole approximately equivalent to the inside diameter of the primary string which has been cemented or landed on down to a depth, let us say, of 3000 feet. We then insert inside through the primary string and down through the open hole another string of casing, which we will term the water string, assuming it has been carried down to a point above the oil measures approximately. When we have that casing approximately in we notify the nearest local department of the Perkins Oil Well Cementing Company that we have a well to cement. We designate to them the location of the well and the size of the string

(Testimony of William C. McDuffie.)

of casing, giving its weight. That outfit is then brought to the well. The necessary balance of the pipe has now been run in during the time the outfit has been notified, and it has arrived at the well. The casing is placed nearly to the bottom, within a few feet of the bottom, and it is located by lowering the pipe gradually until the bottom is found. Circulation is then started with the mud pumps down through this casing. As soon as that circulation is properly established the top connection on the well head is removed so that a plug can be inserted into the top. Then the capping or plug, or whatever the contrivance may be on the top of the well head—we have a number of different ones we use—is placed back, and cement is mixed and pumped in to the top of the casing, down in on top of the plug, down through the casing. As soon as all of the cement which we desire to place inside of the pipe has been mixed and pumped in on top of the plug the head is removed and another plug is put in on top of it. The head or top or well cap is then replaced and pumping is again started. This pumping is continued until such time as the last plug indicates that all of the cement has gone out of this casing and is in behind the casing. When I say all I mean assumedly, as it is practically all out. Sometimes we put in a spacer so we can leave a few feet inside of the casing. That, generally speaking, is the method which we follow in cementing our wells.

In giving my testimony and in describing what I think might be a proper royalty, I would so with that general description in mind.

(Testimony of William C. McDuffie.)

I spoke of cementing the first 1000 feet of pipe. The next string which is inserted is smaller than that string, and therefore the circulation comes right on the inside between the walls of the casing, right to the surface between the two pipes. The conductor is just the starting. Sometimes we cement it and sometimes we land it, meaning we just set it down, but the mud packs in behind it and circulation will come up inside of it rather than on the outside, and the inside string in a rotary hole has considerable clearance ordinarily.

We give the plugs the weight of the pipe because the plug is made to fit the pipe closely. I mean so much per foot of weight. For instance, a 10-inch casing may be forty or forty-five pounds per foot. We have some very close jobs of figuring that we occasionally use but one plug. Customarily we use two. It makes no difference in the charge. It makes a matter of perhaps five minutes in the actual cementing, of time, when we only put one plug in instead of two. I have been operating out through this field here for many years.

I have had charge of all the drilling of wells by the Shell Company in Southern California. Every well they have drilled in Southern California has been under my supervision.

Q What sort of pressure does the pump put on the cement?

A At the start there is a pressure that is not much more than would be the normal pressure in circulating the mud. That pressure normally would run on the depth of hole I have mentioned around 150 pounds per square inch for normal circulation. As the cement enters on

(Testimony of William C. McDuffie.)

top of the plug, the cement being of a greater specific gravity than the mud in the hole, the pressure goes down, and by the time you have in a couple of hundred cubic feet of cement there will practically be no pump pressure, and very often there will be a suction so that the pump is just racing, picking the cement up and putting it into the casing. Then after the cement has hit the bottom, after the first plug has hit and the cement starts around, there is a gradual building up of pressure, and on many jobs that I have witnessed I have noticed that usually when the first plug hits there is an accumulated pressure of fifty or seventy-five pounds, so that you notice it on the gage, and you have an opportunity then to check up. Then as the cement gets around behind the pipe you begin to have to lift an additional weight because you are getting your greater specific gravity out behind your pipe, and you are having to raise it up with a fluid on the inside of the pipe that is of a less specific gravity, because you have put either mud or water behind your second plug. When the second plug hits, the pump usually builds up a pressure of between 500 and 1000 pounds. Normally the last part of the cement goes in at from 300 to 450 pounds. The minute that the pump has put up the pressure which we consider is the final pressure, we disconnect the pump and leave the pressure on the well as long as it may stand there. Normally the pressure goes off in a matter of a few minutes, that is, dissipates. I don't know where it goes, but it dissipates very quickly. There is a head on and that head is left on. The water is held inside, but the final pressure that the pump puts up after the pump has been disconnected

(Testimony of William C. McDuffie.)

and the valve at the head is closed seems to dissipate very, very quickly. I have never understood what became of it, but it does dissipate very quickly. Often we remove the head within a very short period. That final pressure apparently is the pressure that builds up as the plug hits and is simply the stopping of an incompressible mass, and the water or mud does not compress any that is in there. There is of course a very considerable pressure on top of the plug, a hydrostatic pressure, and there is the entire column of water or mud, which remains on top of the plug, and the plug has a cup on top of it which prevents the fluid itself dissipating down beyond the plug.

Q You have described what you know as the Perkins method as it is actually employed by your company. I will now ask you to give your opinion of what would be a reasonable royalty for the right to employ that process in the cementing of wells for oil companies where you were to receive \$250 per well for the operation, over a period of time from the 1st of May, 1921, to the 1st of June, 1923, in the Southern California fields, to wit, Long Beach, Huntington Beach, and Santa Fe Springs, considering the nature of that process, its utility and advantages, and having in mind eliminating the use of the first or bottom plug and employing either a shoe guide or some equivalent obstruction at the bottom to arrest the top plug when it reaches the bottom of the casing, or approximately the bottom of the casing. I am asking you to put yourself in the position of a man who is going to cement wells for oil companies and receive from the oil companies \$250 for each cementing job. How much would be a reasonable royalty for him to pay

(Testimony of William C. McDuffie.)

for a license to use this Perkins method, as we have defined it in the question, to the owners of the Perkins patent?

MR. WESTALL: We object to the question as incompetent, irrelevant and immaterial, the subject-matter of the question not being proper subject-matter for expert testimony, the witness not being properly qualified to testify as an expert as to the amount of royalties, and particularly not having stated any facts which would qualify him to estimate or guess at the amount of a royalty.

THE MASTER: He may answer subject to the objection.

MR. WESTALL: Exception. I understand that counsel had admitted, at least inferentially, that there was no established royalty, in his statement that no license had ever been granted.

MR. LYON: Not in this field, Mr. Westall; that is correct, there has been no license granted. Mr. Perkins has done the work himself, or at least his company has.

THE MASTER: I don't think that would be competent evidence, to show what a royalty in another field is.

MR. WESTALL: The point is, we object if there is an admission that there was an established royalty, or some royalty, in some other field.

THE MASTER: Let's hear what the witness says about this field.

MR. WESTALL: Note an exception.

THE WITNESS: As I understand, assuming that I have been licensed to use the Perkins process and make a

(Testimony of William C. McDuffie.)

charge of \$250, you desire to know what I think would be a reasonable amount to reimburse the Perkins Company for the use of that process. I know what is furnished by the Perkins Company in the cementing of a well: a cement man and a truck and the plugs, and that does not include the cement nor the steam nor water nor the mud.

Q Assume you wanted to give the same service that Mr. Perkins gives and that you could get \$250 for each cement job from the companies you performed the operation for, what do you think would be a reasonable royalty or share of that to pay to the owners of this Perkins patent for the license to use the Perkins method, as I have defined it in my question?

MR. WESTALL: The same objections are repeated to the question as re-stated or re-vamped.

THE MASTER: The same ruling.

MR. WESTALL: Exception.

A I think a very reasonable royalty would be 25 per cent. of the charge of \$250; a quarter.

Q If during this same period of time, from 1921 to 1923, Mr. Perkins had not been giving the service that he gives in these Southern California fields, and without a license the Shell Company could not have employed this Perkins method as I have defined it in my question, what would be your opinion as to whether or not 25 per cent of \$250 would have been a fair royalty to have paid for the Shell Company to have obtained a license, and by fair royalty I mean would that have been an unreasonable royalty from the standpoint of the Shell Company, in your opinion?

(Testimony of William C. McDuffie.)

MR. WESTALL: Objected to on the grounds stated to the previous question: as incompetent, irrelevant, and immaterial, and the witness not being properly qualified, the subject-matter not being a proper subject of expert testimony.

THE MASTER: I will receive it subject to the objection.

MR. WESTALL: Exception.

A Inasmuch as at the moment I am not acquainted with a better process, and if I found my company forced into a position where they were unable to acquire this process without a royalty payment, I shouldn't hesitate for a moment to say that I would be quite willing to pay in excess of 25 per cent of \$250 for that process. That is, I would furnish all of the equipment myself and labor. If that was the only way that I could get the use of the process I should be willing to pay in excess of that amount rather than use other methods that I know of. To say how much that would be is impossible for me to say, because I would certainly try to trade it down.

THE MASTER: I would like to ask him if he thinks he could make any money on paying a royalty of \$62.50 with all this equipment and so on.

THE WITNESS: I haven't any doubt I could make money on that basis; I would be willing to attempt it, if you would arrange for Mr. Perkins to license me on that basis and put me in business in California.

On

CROSS EXAMINATION

by Mr. Westall the witness testified:

The lower plug, in my mind, is particularly a barrier, in that it prevents adulteration of the water and cement

(Testimony of William C. McDuffie.)

in going down the hole. The cement is of a greater specific gravity than the water, and if there were not a plug ahead of the water then the cement would tend as it went in to shoot out in stringers ahead. Therefore it acts as a barrier between the lower water or mud and the upper cement which is above the plug. The last plug acts as a barrier between the cement and the upper fluid, which may be mud or water, because in going down, inasmuch as the cement is of a greater specific gravity than the mud, there is a tendency as it goes down the hole, on account of the irregularities of the size of the pipe and on account of the interstices between the collars, that a swirling motion is set up and the upper part of the cement becomes adulterated with either the mud or the water which is following the cement. If an upper plug is in between the cement and the upper fluid, this cannot happen. It is particularly advantageous that the upper part of the cement does not become contaminated, owing to the fact that this is the cement which is last around the pipe and you depend upon this last cement for your positive bond around your shoe joint; therefore that cement should be the cleanest of all of the cement which goes around the shoe. The second, or upper, plug acts particularly as an indicating barrier in that it indicates at the surface, through the medium of the pump, that the cement has reached bottom. I attach to the word "indicating" the word "barrier" because it is both.

Q Your estimate of a reasonable royalty is based, is it not, upon your conviction that this use of one of the plugs as a barrier is the most valuable feature of this Perkins invention? Is that your idea?

(Testimony of William C. McDuffie.)

A The question, as I understood it, was asked me—

Q Well, this is a new question.

A But you asked me upon what I based my answer to that question, therefore I must repeat the question. I answered the first question on the basis of royalty, of how much I thought was a fair royalty to pay out of a charge of \$250. I answered the second question on the basis of what I thought would be our difficulties in case we were unable to use the plug method. I should therefore think I could best answer your question by stating that I think, or by saying that my belief is, that I could afford to pay more on account of the use of the plug. As I have described it to you, it has a two-fold purpose: both as a barrier and as an indicator.

Q But if the plug was not used as a barrier to separate the water from the cement, would you be inclined to pay as much for the use of this Perkins process as you would if you were permitted to use the plug as a barrier?

A I will put it this way: If the plug has no fit in the casing I would see no value of its use.

Q If you were to be licensed to use what you have defined to be the Perkins invention, but it was expressly understood that you could not use this plug to separate water from cement, would you be inclined to pay the royalty that you have mentioned, or would you insist upon the use of the plug as a barrier to separate water from cement?

A I don't think I should insist upon its use as a barrier, but I should insist upon the use of a plug, that is, I should insist upon the privilege of using one or more

(Testimony of William C. McDuffie.)

plugs as I saw fit. I don't think I should specify that they should be allowed to be used as barriers, because I would work on the assumption that unless they were constructed, one or more of them, or that I had the privilege of constructing them so they could be used as barriers, I wouldn't care for them. I would not enter into any agreement which limited me specifically to the use of the plug for any particular purpose. I should insist upon the use of the plug at my discretion, for various purposes and types of jobs, Mr. Westall. There are many different types of cementing jobs. I would insist that I have the privilege of judging whether or not I should use the plug distinctly as a barrier. I would not tie myself down to saying that I would not use the plug unless I used it only as a barrier, because it has other purposes.

Q Suppose the agreement was that you might use it as an indicator, but the agreement was so worded that you could not use it as a barrier to separate any water from any cement. Now the question is, would you enter into that agreement, and would you be willing to pay the royalty that you have suggested with that qualification?

A Well, I might like to use mud instead of water. On my bottom plug I might wish to use it as a barrier, going down the hole, but not as an indicating barrier to the extent of its stopping my pump. I don't know how to answer your question yes or no. The reason I think it is a difficult question to answer is because we have been talking about what my understanding of the Perkins process is and talking about if I were licensed to

(Testimony of William C. McDuffie.)

use the Perkins process, and I really don't understand how I can answer the question.

Q Suppose you were offered a license, such as was suggested by counsel during your direct examination, for the use of this Perkins process, but suppose that that license contained the qualification that you could not use the plug of the Perkins process as a barrier to separate any water from any cement, would you or would you not accept such a license and agree to pay that \$62.50 royalty with that qualification?

A Well, I don't understand that I would be licensing the Perkins process then. Then it is not a question of licensing this particular process we are discussing. That was my understanding when I answered the question. I don't see how I could use the plug as an indicator if it wasn't also possible to use it as a barrier.

Q Then you wouldn't accept that kind of an agreement, would you?

A Well, you speak of opposites. I can't accept two opposites in the same agreement. The license which you refer to is not the license which I understand has been put to me. I would not accept that kind of an agreement. In the start you asked me if I would accept the license referred to, and then you changed the type of that license and asked me if I would accept it. Understanding that it is changed from the license agreement, from the license proposition as put up to me, I would answer the question no, because it is changed; it is not as it was put to me; you asked me if I would accept the license if it wasn't a license. That is very obvious, I think. A contract of that kind would not be desirable because you

(Testimony of A. A. Perkins.)

asked me would I accept a license with a lot of qualifications that make it not that license.

Q It doesn't make any difference what you call it; you are quibbling on what it is called.

A Certainly; because the whole thing is fundamental. If you will ask me would I accept a license for an entirely different kind of a cementing process from the process outlined here, then I will answer your question right out. My understanding is that the barriers to separate the water from the cement are a vital part of the Perkins process. I would consider if there were any plugs at all used that fitted casings they would be considered barriers, and if the plugs used did not fit the casing they would not constitute barriers. By barriers I mean plugs that fit the casing and are mediums of separation between some tube or things that are inside of the pipe.

(Balance of cross-examination postponed until later.)

A. A. PERKINS,

recalled for Plaintiff, testified further on

DIRECT EXAMINATION

by Mr. Lyon:

Referring to the operating stations we had in Southern California fields from May, 1921, to June, 1923, I don't know the extent to which the outfits or trucks were absent from those stations during that period of time on cementing operations as compared with the time which they were standing in the stations waiting to be called. Sometimes the outfits are all out and sometimes we have a reserve. We always have a reserve from one station

(Testimony of A. A. Perkins.)

to the other where we can shoot one outfit into another station. We maintain that reserve at Whittier. We would have about seven trucks there, and if there were any need for any further trucks at Santa Fe Springs or Huntington Beach we could shoot them over there. Lots of the work at Torrance was done from the Whittier garage and also from the Long Beach garage. Our purpose in maintaining reserve outfits there over and above what would normally be needed was so that we could always be sure that we would always have an outfit for a person when they wanted it. When they want an outfit they want it the day before, generally. We have never gotten caught without it yet, as we would work night and day to finish that up. Sometimes a flood comes in, 12 or 15 wells right at once, and we have got to have a reserve to take care of them.

We could very easily have cemented the 280 wells that were cemented by the defendants in the Huntington Beach, Long Beach and Santa Fe Springs fields, as shown by their report, from our operating stations as they existed during the same time, without the addition of any further trucks or equipment. It was over a period of 25 months, which would be about 12 wells a month.

Q What expense would you have been put to to have cemented those 280 wells, over and above the expense that you had in your business, independent of obtaining that work?

A Well, there would have been practically no more overhead expense to it, and there would have been the addition of the plugs and probably the wear and tear on the outfits, which would probably amount to about \$75

(Testimony of A. A. Perkins.)

or more. The \$75 is just the wear and tear on the equipment and the plugs. We wouldn't have had to put on any more help. Our men are paid by the month. We don't give them any additional on account of the number of wells they cement. Their time goes on and they are never docked, year in and year out. If they are sick they are never docked, and if they are hurt they are never docked; they get their wages just the same. We have had men who have been laid off three and four months at a time and they always got their check at the end of the month just the same. When the work is to be done they do it, and when the work isn't there to do they don't have anything to do, so one thing balances up with another. They all seem to like that plan.

I don't know just what the plugs cost. We estimate the plugs about \$50. That is what we sell them for. I didn't say \$75 outside of the plugs; the wear and tear would be about \$25 a well, for the extra gasoline and so forth. I think the total expense we would be to in cementing those additional wells would be \$75 per well.

We have sold plugs outside, where we didn't do the work, for \$100, that is, \$50 royalty and \$50 for the plugs. We have sold them to the Standard Oil Company and the Associated Oil Company and they have paid us that rate for the plugs and the \$50 royalty. Those were not sold to be used in this territory, but outside where we have no outfits. We have never given any consideration to licensing anybody in the territory in which we have our equipment, because we have the outfits there, and if we would license them our outfits would be standing idle. We have a list there of those to whom we sold,

(Testimony of A. A. Perkins.)

that Mr. Whitney took off of our books at my orders, and you can read the wells and he will verify it. That is taken from our books.

(List marked Plaintiff's Exhibit 64. for Identification.)

We have had requests for licenses in this territory or in the territory in which we operated, and in all instances we refused the request. The Pacific Oil wanted a license and we told them if we licensed one we would have to license another, and they said, "Well, we see your point all right, but if you will agree to take care of our work we will turn all of our work over to you," so we immediately bought enough trucks to take care of the work. That was about eight or nine years ago.

We are receiving a royalty for the use of the method of the patent in suit for Oklahoma and the rest of the Mid-Continent oil fields from Mr. E. P. Halliburton, of Duncan, Oklahoma. He is cementing wells by that method in Oklahoma, Texas, Kentucky, Arkansas, and Louisiana. There are five States all together.

Q What did Mr. Halliburton pay you for the license to operate in that territory under the patent in suit, Mr. Perkins? I mean the entire consideration that he gives you or has given you for the license.

MR. WESTALL: We object to that as calling for not the best evidence, any written agreement that may have been made between these parties being the best evidence, it being incompetent, irrelevant, and immaterial.

THE WITNESS: I know myself how much we have received.

MR. WESTALL: The further objection is made that if that agreement is produced it will show that there were

(Testimony of A. A. Perkins.)

other considerations, and that it was a mere settlement agreement between the parties of other litigation, and that the amount that was paid was no measure at all by which to determine any reasonable royalty.

MR. L. S. LYON: In view of Mr. Westall's objection, I will make this statement: that the original agreement is in evidence in the United States District Court in the Western District of Oklahoma, in the case numbered 547, Erle P. Halliburton vs. Dan Burriss. I have a transcript here of that case, in which the transcript of that agreement is copied in full, and if counsel cares to examine the agreement I will be glad to have it examined by him, or copied into the record.

MR. WESTALL: The objection is that it is a mere copy, or purported copy, of the agreement, and the best evidence is the agreement itself, and we insist if the agreement is of any materiality at all that it should be produced.

THE MASTER: Overruled.

MR. WESTALL: Exception.

A He paid us \$25 a well royalty and gave us the exclusive right of the patent on his measuring line that he used to determine where the plugs are, for all States this side of the Mississippi River.

MR. WESTALL: We move that the answer be stricken out as clearly not the best evidence, and merely a conclusion of the witness as to what the contract contains.

THE MASTER: Motion granted.

Q BY MR. LYON: Mr. Perkins, during the time between May 1, 1921, and June 1, 1923, would you at

(Testimony of A. A. Perkins.)

any time have been willing to have granted the defendant Wigle or the defendant Cottengim, or either of them, a license to employ a process covered by the patent here in suit in Southern California, at a royalty of less than \$50 per well?

MR. WESTALL: We object to that as incompetent, irrelevant, and immaterial, and it is no basis at all for the determination of what would be a reasonable royalty even if that question were pertinent to this accounting proceeding.

THE MASTER: Objection sustained. You may answer for the record.

A No, sir, I would not.

Q BY MR. LYON: Mr. Perkins, in your opinion would less than \$50 have been a reasonable royalty for the right to employ the process covered by the patent here in suit in the Southern California oil fields between May 1, 1921, and June 1, 1923?

MR. WESTALL: Objected to as calling for a conclusion of the witness, as apparently calling for expert opinion as to what would constitute a reasonable royalty, no foundation having been laid for the testimony of this witness as an expert, and the subject-matter of what would constitute a reasonable royalty being a matter concerning which, in the absence of any such actual agreement for royalty, is not a proper subject for expert testimony.

THE MASTER: He may answer subject to the objection. I am inclined to think this is not a proper question, though, for opinion evidence.

MR. WESTALL: Note an exception.

A I don't think so.

(Testimony of A. A. Perkins.)

On

CROSS EXAMINATION

by Mr. Westall, the witness testified:

Q In this Plaintiff's Exhibit 64 for Identification I notice a number of names of places here underneath "Port Orient, Washington," and different places in Washington, and Lewiston, Montana, and Alaska.

A Yes. They paid us this royalty for the packers and we shipped them and they did the work themselves.

MR. WESTALL: With that explanation of the witness, we move to strike out this so-called statement of royalty charges as incompetent, irrelevant, and immaterial. The Master I believe has already ruled that the amount paid as royalty in some other locality is no proper basis for determining the amount of royalty here.

THE MASTER: I will let it stand as bearing on reasonable royalty, and deny the motion.

MR. WESTALL: Exception.

THE WITNESS: We have no regular contract with the Standard Oil Company for the purchase of these plugs. The \$100 for the plug is \$50 for the plug and \$50 for the royalty—\$100 f. o. b. Los Angeles. In none of these cases did we use a single plug and charge just \$50 for it. We used the two plugs; they always used the two plugs. \$100 for the set. You couldn't use a bottom plug for a top, nor the reverse. Here in Southern California I think that we have sold a top plug for an indicator to find out about a split casing; but that I remember of we never have sold any of these plugs for use in Southern California (for cementing). We have no written agreement with the Standard Oil Company

(Testimony of A. A. Perkins.)

for the purchase of these plugs for use outside of Southern California. When they order plugs for use in these different places here, the order comes from the purchasing agent here in this locality, and we bill them direct to the Standard Oil Company at the place indicated here.

Q As a matter of fact you don't tell them anything about royalty charges, do you? You just simply charge them \$100 for both plugs, don't you?

A We explain that is what that is for. We have no explanation in writing. We did not send them a letter explaining that to them. They know it. I don't know just how that is billed. I don't keep the bills, but that is what it is: it is \$50 for the plugs and \$50 for the royalty. We have the original books in which these charges are kept. Mr. Whitney took these different entries here off of the original books. We have never sold any plugs, including the right to use them, for less than \$100 a set to any place. They don't use them in the eastern fields. They don't cement there. We have not sold them in any field in the United States outside of the Southern District of California for a different price than \$100 a set. When we sell them the plugs we give them the right to use them in doing this cementing by our process; that includes the royalty and the plugs, which is \$100. I guess you will find some in Mexico in that list. I have a patent in Mexico and one in India.

We do not have a patent on any of these plugs. We have a patent on the system with the plugs, but not any other patent than the patent here in suit.

I don't remember whether the Richmond Petroleum Company of the Philippine Islands order their plug in

(Testimony of A. A. Perkins.)

San Francisco or where. That was the Standard Oil Company in the Philippines. The price is understood. They just order the plugs and send us a check when they get them. None of these persons that I know of wrote a letter to us inquiring what we charge for plugs, but I don't keep the books. Mr. Whitney probably would know as to the correspondence. Either Mr. Whitney or my daughter, Edna C. Perkins, who is secretary and treasurer, carries on any of the correspondence that might result in ordering the plugs, or answers the inquiries as to the price of our plugs. Mr. Whitney's first name is Lewis. I don't know anything about any of the correspondence that might have been had, or whether there was any such correspondence. They just send an order in and we send them the plugs, as far as I know. There might have been letters in which they asked for prices; I don't know whether there were any such letters.

At the time of this settlement with Halliburton, in which I testified a certain amount of royalty was paid, there were suits pending against him, that is, we had a suit pending against him. I never heard of a suit by him against us; he was not threatening us with suit. He has a patent on a measuring line, and he uses it now. We never used that. We did not take a license under his patent. He turned that patent over to us for these States in consideration of the royalty that he pays us. He has a patent right on it. He turned those entire rights over to us.

(Adjournment to October 24, 1923, at 10 a. m.)

(Testimony of A. A. Perkins.)

October 24, 1923. 10 A. M.

(The reserved ruling of the Master on the question of an expert giving an opinion as to a reasonable royalty for the use of an invention was further argued.)

THE MASTER: The rulings reserved are now made. The objections are overruled.

MR. WESTALL: We note an exception.

(Further time given to Mr. Westall to find authorities on the question, the Master again reserving final ruling.)

A. A. PERKINS

testified further on

CROSS EXAMINATION:

I am probably not familiar, from my own actual knowledge, with the conditions under which each of these orders mentioned in Plaintiff's Exhibit 64 for Identification was taken by our company. They were ordered through the office and I don't keep the books.

Q You had nothing to do with talking over with the representative of the Standard Oil Company or the Richmond Petroleum Company or the California Company at Lewiston, Montana, or the Associated Oil Company for Alaska, or the Anglo-Mexican Petroleum Company, Ltd.—

A Yes, sir, I did with the Anglo-Mexican Petroleum Company. I had a conversation regarding the price of plugs with the purchasing agent in New York City; I could not give you the date. We have orders here showing the date.

(Testimony of A. A. Perkins.)

Q Here, for instance, the dates are given for the Anglo-Mexican Petroleum Company order as January 22, 1923, February 24, 1923, and June 13, 1923.

A It was just shortly before the first order was filled, that I had my first conversation with the representative in which I fixed the price with this certain company. I think on the order is the price. That is the only place that I know of that the price of these plugs was noted. I couldn't tell you the name of the purchasing agent in New York City; it has slipped my memory. We did not have any written agreement or contract with him at all in regard to the price. I know personally where we sent these plugs in fulfillment of that order. I can show you where we sent them. This bill of lading dated December 28, 1922, is the first order.

The Anglo-Mexican Petroleum Company, Ltd., paid \$50 royalty in each of these orders referred to in Plaintiff's Exhibit 64 for Identification; that was included in the price of \$100 per set. Referring to this order S. F. 293, which reads, "One set packers, \$100 per set," there are three sets of them listed in the order at \$100 a set. Down here it says "Plus \$50 royalty for the use of the reagent." That has nothing to do with this at all; that is another proposition that we furnished them outside of this. It was for hastening the setting of the cement. I haven't a patent on that, but I have the right on it.

Q You find nothing in any of these orders or in the bill of lading referring to any royalty for the use of those packers?

A That was explained to them personally, that \$50 was to be for \$50 on this and \$50 for the packers. Those

(Testimony of A. A. Perkins.)

things were to be used in Mexico. We have a Mexican patent.

I don't remember just who did have the talk with any of the other companies mentioned in this Plaintiffs' Exhibit 64 for Identification regarding the price of these plugs. It was understood that they were to pay \$50 for the price of the plugs and \$50 royalty for using them. We have no contract with any of the companies, only just as we talked it over. We charged \$100 for the plugs, including the royalty. That is what our terms are to everybody. I don't know whether it was divided into \$50 for the price of the plugs and \$50 for royalty in the books; I don't keep the books. This Plaintiff's Exhibit 64 for Identification is a copy from the books; what is on there is a copy from the books. I don't know whether the price of plugs was segregated in the books from the price of royalty; I don't keep the books.

In all these cases we have sold two plugs as a set. Whether we used one plug or two plugs was just according to how the job was. I couldn't tell you how often we used just one plug. I didn't do the work. In these cases in which we authorized the use of our plugs it was always a set of two we sold; but we don't know whether they used one or two. We would send them a set. The price was \$100, including \$50 royalty. Surely we would sell them one plug for the use of our process, alone. I don't remember whether any one ever ordered just one plug. I couldn't tell you because I don't keep the books; I don't keep track of that. I don't think I would have known it if there had been any considerable number of those used alone, one plug sold for use in different places.

(Testimony of W. C. McDuffie.)

I don't know to what extent we use one plug in our cementing operations at the present time. I am not in the field and I don't do the cementing. I have not been in the field to do the work within the last six years.

Q Now, before that time to what extent did you use just one plug?

MR. L. S. LYON: That is objected to as irrelevant and immaterial, and as having no bearing on any issue in the case, that I can see.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

On

REDIRECT EXAMINATION

the witness testified:

In this charge of \$100 that we made for the furnishing of the plugs and the right to use the process in territories outside of where we were operating, the \$50 plug charge included a profit on the plugs. And they could make the plugs if they wanted to. They are very easy to make. But when they buy them of us they know they are right down to the size. If that plug is a quarter of an inch too large it wouldn't do. But the plugs are simple enough to construct and copy.

W. C. McDUFFIE

recalled for

CROSS EXAMINATION

testified:

I have not talked with Mr. Lyon or the plaintiff or anybody else since the last adjournment concerning my future testimony on cross-examination in this case.

(Testimony of W. C. McDuffie.)

My experience in fixing royalties upon patents has been in the establishment of a royalty on the use of a quick-hardening chemical in cementing oil wells. The royalty was established at the price that I placed upon it. I did that sometime last year; I don't remember just when or what the date was. The Shell Company uses the process but doesn't pay that royalty. They use and recognize the patent, but it was developed through my personal efforts on the Shell Company's property. I mean this hardening process. It was developed in part through my efforts. I was not one of the joint applicants for that patent.

Q What part did you have in developing that process under the patent?

MR. L. S. LYON: That is objected to as irrelevant and immaterial.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

THE WITNESS: This invention was the result of a search extending over seven years, in which I have been very personally interested. I have written all over the world endeavoring to find some method of hardening cement in oil wells, knowing that the expense in doing that by the normal process was considerable and that I could save an untold amount of money in the operations if I could develop it. I didn't have sufficient technical education myself to make the necessary experiments, and the necessary experiments were made by another man. I think that answers the question quite clearly. The inception of the idea was entirely mine. The patent was granted to Frederick W. Huber. I don't know the date

(Testimony of W. C. McDuffie.)

of that patent. To my knowledge there was but one patent granted to Huber on the process or method of hardening cement in cementing wells.

Q May I ask what interest you had in this patent at the time you fixed this royalty?

MR. L. S. LYON: That is objected to as immaterial. The interest of the witness is conceded in that particular invention.

THE MASTER: In view of the concession the objection is sustained.

MR. WESTALL: Exception.

THE WITNESS: At the time of these experiments which resulted in this invention I was general superintendent of the Shell Company. I personally initiated those experiments.

Q And was your first conception of this idea you have spoken of found to be correct upon experiment?

MR. LYON: That is objected to as immaterial and attempting to obtain discovery in regard to an invention that is not here in issue in any way.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

Q At the time you fixed the amount of this royalty that the Shell Company was to pay didn't the Shell Company know of your interest in this patent?

MR. LYON: That is objected to as immaterial and as a mis-statement of the testimony of the witness, assuming a fact not testified to by the witness—that the Shell Company was to pay the royalty.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

(Testimony of W. C. McDuffie.)

THE WITNESS: The Shell Company does pay royalty. I stated that the Shell Company doesn't pay the royalty which I established generally for the business. The Shell Company pays that royalty upon my recommendation. The royalty was established through conference with officers of the company. It was a joint establishment. The officers and I agreeing together established this royalty. I did have experience in fixing that royalty because the royalty was established for the company at my suggestion. My suggestion as to the amount of royalty was not accepted without any change. My suggestion was that in view of the fact that a number of experiments had been carried on at the company's expense I was in position to see to it that the company paid nothing for it; but the company considered it so valuable that they agreed to pay a consideration.

Q As a matter of fact, you knew that the Shell Company had a shop right to use that invention without the payment of any royalty, did you not?

MR. LYON: That is objected to as immaterial.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

THE WITNESS: It was at my suggestion that the patent was licensed at an established royalty to the industry.

Q Do you know who owns that patent at the present time?

MR. L. S. LYON: That is objected to as immaterial, since the royalty was established.

THE MASTER: The objection is sustained.

MR. WESTALL: Exception.

(Testimony of W. C. McDuffie.)

THE WITNESS: At the time of my fixing the royalty for the industry or suggesting the amount to be fixed, I owned a substantial financial interest in that patent.

I have had other experience in fixing royalties on other patents connected with the oil industry. I have been connected with the Shell Company since approximately 1907—No, not with the Shell Company since 1907, but with the industry since 1907. I had nothing whatsoever to do with the fixing of the royalty or purchase price the Shell Company agreed to pay for patent 1,070,361 granted to the Trumble Refining Company on August 12, 1913, for oil topping process. I don't know that patent by number. On this cement-hardening process patent, the matter was in such shape that there was no necessity for the Shell Company paying royalty, but the industry paid the royalties as I fixed them.

Q What other patents have you had experience in fixing royalties on?

A We have coming to us constantly inventors. These inventors may or may not have tools or appliances for the industry that are of value. Quite often we are requested to give an idea of what we think that patent is worth to the industry—how much we would be willing to pay for a license to use such patent, or what we think would be a reasonable amount for the inventor to charge for the use of the patent. In addition to that the Shell Company has had in its employ men who have invented things, and it has not been the policy of the company to maintain for their own exclusive use things invented by employees unless they were of a distinctly secret nature, therefore it has been the policy of the field department to rent pat-

(Testimony of W. C. McDuffie.)

ented tools and establish a royalty on the rental. Now, at the present moment in my mind is a matter of casing spears. For a number of years we supplied from our tool shed at Coalinga casing spears, casing cutters, and other types of fishing tools for the use of the entire industry in the Coalinga field, and we charged a rental for those tools, basing our rental upon what we thought the value of the tool was to the industry. In addition to that we have to sometimes endeavor to establish for the inventor on the property some price which we think would be reasonable for him to charge in licensing. So generally it gives us an opportunity to investigate and get an idea of what the value of various inventions is to the industry. I do not find any general rule. It is confined entirely to the specific article under consideration. If I may cite it, I have a distinct case in mind which has come to my attention within the last two weeks. The man has invented what apparently is a very splendid set of rotary trip jars. Now rotary pipe is practically inflexible; you may get in 4000 feet of 4-inch pipe a couple of feet stretch, but it is only stretched up like this (Illustrating)—you can't give a blow. If you take the stretch up and let it back you kink your pipe. Very frequently we have left in the hole a "fish," meaning a piece of the tool with which we drill. We have jars made by other people that are not satisfactory in that they do not allow for the proper circulation of fluid through the jars; that is, the jar is all right to take hold of the fish and you can use it pretty well, but you are limited through your up action and you are limited because you cannot get the proper circulation. Now this man put out a jar that will allow you not only to circulate

(Testimony of W. C. McDuffie.)

through but take that strain and twist your pipe and then get a very sudden, severe blow on the fish. That jar has saved us a great deal of money in the last six months. We have been paying a flat rental price for that of \$150 for every job. As far as we are concerned it is worth it, because it has saved us a lot of money; but other than that we feel that in all those things we should get them to the best advantage we can, therefore I am endeavoring to get a rental price per month out of the man for the use of the jar. There is something that we have to go over our schedules and see how many jobs we have had, estimate how many jobs we are likely to have, and estimate how much we are paying and how much better we can do by the use of this invention. That is a specific instance that is fresh in my mind, because it has come to my attention within the last few weeks, to decide what I would offer him for its monthly use.

Q Do you figure your savings during a period on any percentage basis?

A This is the idea: that we have had so many jobs where we have been unable to get these fish out and have had to sidetrack them, and, unfortunately, sometimes skidding the rig, that to have a fish stuck that we cannot pull, taking hold of it normally, and then maybe loss of time coming back and taking hold of it with the jars and getting it out, that possibly means a saving of the hole to us. I can say that I have gone back in and taken hold of a fish four or five times and have been unable to pull it. We go in and take hold with the jars and jar it for six or eight hours and get it out. So it is difficult to calculate the intrinsic, absolute value. But now that we know about

(Testimony of W. C. McDuffie.)

the jars we would pay considerable money rather than to go without them. And it is not the policy of the company, where a patent normally seems to hold, as far as our investigations show, to try to go in and make the jars and use them ourselves.

In fixing royalties we have to deal with the royalty established by the man first. Will we or will we not use that patent as he has established the royalty? Then if we find we pay him more money than we think we may have to we try to get him around to what we think is a more reasonable basis for our operations. If our operations are large he can better afford, perhaps, to reduce his rate to us, and it is a question of whether or not we can convince the man of that. Many inventions are sold with just a manufacturing royalty placed on them. We have, for instance, foremen who invent a tool, and rather than charge for the use of the tool they will sell the tool for a certain price, adding a certain percentage upon the cost of manufacture for their royalty. That percentage is quite arbitrary, again depending upon the possible value of the tool to the industry. May I cite an instance of something that we are looking for now that would prove of great value and put in your mind how difficult it is to put up the intrinsic value of a thing—of a jar, for instance? We are now searching and have searched for two years for a certain type of mud-treating machine. That is again because of fish in the hole. Now if someone would come around to me tomorrow with a type of machine that I want I would pay a considerable amount of money to get it—how much would depend upon the efficiency of that machine and to what extent it actually

(Testimony of W. C. McDuffie.)

helped the work when I got into operation. There is no hard and set rule in fixing a reasonable royalty; we have absolutely no inflexible rule. The experience of fixing a royalty in one case would aid in fixing a royalty in another case, because it gives the relative values: it gives one an opportunity of judging the relative value of an invention, and therefore how much more or less it is worth to pay for it. I don't remember in how many instances I have initially placed the amount of royalty upon a device.

Q I understood in your prior testimony that you referred principally to cases where the inventor had initially placed a royalty, and the question was whether or not the Shell Company would accept that royalty and pay it.

A Only in part. I have stated that we had numbers of things invented on the property that it was necessary to give consideration to. The cases in which I in the first instance suggested or fixed the amount of royalty to be paid upon any invention relating to the oil industry goes over too long a period of years, and I would not trust my memory to make such a statement. I would say it was certainly under fifty. I would say that probably it was between twenty-five and fifty. I would say that would cover too long a period.

When I started in the oil industry in 1907 I commenced as a roustabout. I worked at that approximately a year, I think. I won't say I was employed only as a roustabout during the entire year, because I did other incidental work. A roustabout is a general helper around an oil property, who does all kinds of work; he does pick and shovel work or stable work or well work or setting boilers

(Testimony of W. C. McDuffie.)

—it all depends on what his foreman may set him at. He is a roustabout in the general sense of the term and is supposed to do anything that may come up. He has absolutely nothing whatever to do with fixing the amount of royalties on patents unless he happens to invent it himself.

In 1908 I was still working in the fields, and I cannot say exactly what positions I was holding during those times. I had worked from a roustabout to a driller before I became in any sense a foreman. There was a period of about—between 1907 and 1910, perhaps—in 1909 and 1910, that I went through various phases of the work. I wouldn't try to tell you just exactly when and how. I did not fix any royalties on any patents at that time, up to 1910. In the early days in the Midway, between 1910 and 1914, those matters of royalty were under consideration. Tools came along during that period of time. I cannot say definitely whether I fixed any royalties up to 1914. I know that there were numbers of inventions on the property, and I know there were considerations, but just exactly what action I may have had personally in it I cannot say at this time definitely. I know there were such matters that would be before us for consideration. At the time I went with the Shell Company the fixing of royalty happened to be a consideration at that moment, on the rental of tools. The Shell Company was renting these tools to the industry; they maintained a tool shed which was not for their own particular use, but they rented tools to outsiders. I was superintendent of the property and therefore it became a duty of mine to look after the tool house and see to the charges. When a tool

(Testimony of W. C. McDuffie.)

is more valuable it is charged more for; that is, if it is more valuable to the industry, not necessarily its intrinsic value. The rental on tools is a royalty in a sense. In 1914 some of these tools were patented by men who had worked for the Shell Company.

Q Now beginning with 1914 and up to the present time, in 1923, you say you think you may possibly have figured royalties on fifteen different inventions.

A I didn't say that I possibly figured or definitely set any royalties on any such number. I said I thought that probably that number had been under consideration and therefore the prices on them were considered. Whether or not I personally set them I do not know, because they may have been set by the superintendent and referred to me, and I might have agreed to it. I cannot remember. I cannot remember the number that I definitely fixed the royalty on myself.

In fixing this royalty upon any of those, we consider the uniqueness of the tool and what we considered its value to be to us. That is all, except that the question of its patent is always considered. In each case I did not have the patent and read it through, but I did in some cases. It is difficult to answer at this distance why I read the patent through. The probabilities are that when the patent came up there was some reason to believe that possibly it was not a valid patent or did not have particular bearing or that there was something else as good that we could use. I read it through for the purpose of determining whether it was a valid patent and for the description of it, to ascertain whether or not it had a bearing on what we thought was the patent. In all those cases after read-

(Testimony of W. C. McDuffie.)

ing the patent through, where I suggested any substantial royalty, I did not satisfy myself from that reading that it was a valid patent; I don't think I would be competent, necessarily to judge. If there was any particular question of that kind it possibly might have been referred to our lawyers. I remember a question not very long ago about a wire line socket—a swivel socket. I also remember a question of a circulating head or packing head. Those two points I have in mind at the moment. In fixing the amount of royalties I did not always take into consideration in every case a special report as to the validity and scope of the patent by some patent lawyer. I have cited two cases in which I did do so. I couldn't tell you, really, how many instances I did that.

I never had occasion to figure on or recommend or fix the amount of royalty of the Perkins and Double patent in suit prior to my being called as a witness on this accounting. To my knowledge the Shell Company has used this process of the Perkins patent in suit; ever since I have been with the Shell Company it has been used by them, and I understand was used prior to the time of my employment by the Shell Company in 1914. During all that time the plaintiff in this case has not done every job in this locality. We have dump-bailer jobs occasionally. As far as my knowledge goes he has done every job in which this Perkins process was used.

In fixing the amount of royalty in this case, I am conversant with the prior state of the art of oil well cementing as it existed prior to October 27, 1909. My personal information does not extend back much before the date of this application for patent, October 27, 1909, in so far

(Testimony of W. C. McDuffie.)

as it might be considered relative to my presence at a particular job; not before 1907. In 1907 and 1908, and prior to October 28, 1909, during my duties I assisted at the cementing of wells. I can't say how many wells I actually observed or assisted in cementing. I think a reasonable figure would be twenty. We used the dump bailer and flushing in cementing those wells. Prior to October 27, 1909, I don't think I ever observed the use of the tubing method. In flushing we dumped the cement in the bottom of the hole with the bailer and then we would pull the pipe up and either put water into it as it was pulled up or else screw a plug in the top of it and lower the pipe and that would flush the cement outside of the pipe. I have seen wells successfully cemented by this flushing method. We still do it occasionally. No plug was used in the casing itself in that method of cementing. I couldn't say how many operations of cementing by that flushing process I have observed altogether; that goes over too many years. I would say between 50 and 100. Not all flushing; dump bailer or flushing; that is, not necessarily the exact combination, but I should say between 50 and 100 jobs either of dump bailer or flushing, or the combination. If we just use the straight dump bailer we just raise the casing up and set it back down into the cement, and assumably there is left some of the cement inside and some of the cement outside of the casing. If we don't put water in to flush it as we pull up, then we may screw a plug into the top, and then assuming that the hole is practically full of fluid there is comparatively a small area of air to compress, and there should be pressure exerted against the cement to force it out. That method

(Testimony of W. C. McDuffie.)

to my knowledge was employed successfully prior to October 27, 1909; I can't say how many times prior to that. It is still used occasionally at the present time, where one wants to put in a very small amount of cement, or in a comparatively unimportant job.

Q Isn't it a fact that that method can be used successfully in cementing a large number of wells?

A Well, if the job is successful in a given case and the same conditions exist in similar cases, or in other cases, I would see no reason why it shouldn't be successful. It would depend entirely upon the character of the drilling. The cases where I have had experience have been usually in holes in which there is no mud and in which there is water, and where the casing was of a sufficiently short length that it wasn't necessary to put a large quantity of cement behind it, and in cases where the formation in which the casing was set was well known and where the bond was well known, that is, where we knew that the formation was sufficient for a small quantity of cement to give a very excellent bond, and where the water head is low and there is no particular static pressure on the cement job in case you bail down the inside of the pipe. Before we do those jobs we go into the particular conditions governing the case always and give them special consideration. I do not recall any of those jobs that have been done recently. Most of that work has been done in our Coalinga field. I don't recall any at the moment that I have done down here within the last few years. The particular objection to that method is if you have got mud in the hole you can't get a dump bailer that will go down in the bottom and dump properly. With the quan-

(Testimony of W. C. McDuffie.)

tity of cement we feel it is necessary to use it would be utterly impossible to put a tight head on there and establish the circulation just as if we were going to use the Perkins process as I have described it, and then put the cement in and use that method. The strings of casing that are cemented require in excess of normally 100 sacks of cement and most of the strings of casing are such a length that it would be impossible to get into the bottom of the hole with a dump bailer, assuming that no mud was in the hole and that the hole was perfectly clean, more than 12 or 15 sacks of cement, because say the pipe is a 10-inch pipe and is at 3000 feet, you can't very well run a bailer over 6 inches in diameter and the bailer is limited in length to the length of the derrick. Let us say you have a 100-foot bailer and it is of 6-inch pipe; that will hardly hold over 12 or 14 sacks of cement, and by the time you get the bailer down to bottom and back out again you have lost fully 20 minutes. If you should fill that bailer again and go back down you would disturb that cement. You could pump cement in and continue to pump it until it came to the surface on the outside, if you wanted to, unless the pipe clogged up or the walls caved or the pump wouldn't handle it. I have never seen it done by taking the tight head and pumping the quantity of cement necessary to cement the well down through the casing and up outside of the casing, and thus cement the well without the interposition of any plugs whatever. You could pump the cement down, but I don't know that you could pump it into position outside of the casing, because the position depends upon very accurate measurement, and I don't know how you could measure it.

(Testimony of W. C. McDuffie.)

Q Do you mean to say you couldn't measure your amount of cement and dispense with the plug and pump that cement into the casing and down the casing and up around the space outside of the casing?

A I have never seen that done. It is possible to pump the cement down the casing and out clear to the surface, if necessary. The cement would not by any manner of means come out at the surface in as good a condition as when it went in. I am sure of that, and have observed it done.

Q I thought you stated a little while ago that you never observed the method that I had in mind.

A I have not, because it was a mistake; there was a hole in the pipe and the cement came to the surface. I don't see how it is possible for cement to be pumped down a well and up outside, or that the cement can be circulated down through the water and come through the water and come out at the surface and be in good condition, without the interposition of any plug at all. There can't help but be a contamination of two elements there of different specific gravities in traveling along a muddy wall. In the first place, you can't pump the cement down through the water; that is a physical impossibility. The water has to move along with it or else go ahead of it, unless you put a pipe line there to pump it through. I don't see how without contamination you can displace the water that is ahead of the cement and that water will flow up outside of the casing and you can pump that cement on top of the water and force the water down and up outside of the casing without any plug at all. I know that cement can be circulated around if the pumps keep going, but I have never seen the cement come out in the same condition.

(Testimony of W. C. McDuffie.)

Q Isn't it a fact that that cement is in such good condition when it comes out that it can be used for cementing a floor or a sidewalk or anything of that kind?

MR. LYON: That is objected to as irrelevant and immaterial.

THE MASTER: Overruled.

MR. LYON: Exception.

A It would depend upon the character of cement you thought you needed. If you are satisfied with a cement that has half of its strength or a quarter of its strength or some small portion of its strength, then I suppose it might make some kind of a foundation, or some kind of a sidewalk. I think there are a lot of them built around here that way. I have never had any experience in seeing that used, that is, that cement used through casing, relying upon just ordinary measurement. I have observed the condition of cement after it has been circulated down through the casing.

I have seen this bulletin entitled "Methods of Shutting Off Water in Oil and Gas Wells," by F. B. Tough, being Bulletin 163, which has been offered in evidence in this case. I have not read it in detail, but I have read various portions of it.

Q I call your attention to page 39 of the Bulletin referred to, where the author, describing the Wigle method, or the method under the Wigle patent, states: "It must be borne in mind that no barrier, not even a cement sack, is used between the cement and the water in this process. A striking instance of pumping cement back to the surface between the tubing and the casing occurred at one of the Pacific Midway Oil Company's wells in the

(Testimony of W. C. McDuffie.)

Sunset Oil field, where liquid cement was pumped into a 10-inch hole about 1600 feet deep, through tubing. It was desirable in this particular well to pump in all the cement that the hole would take, so 18 tons (360 sacks) was mixed and pumped in. Of this amount two or three tons was washed back to the surface. When the cement came to the surface it was in such usable condition that a tank was placed there to catch it. The tank full of liquid cement was hauled to a garage where the cement was mixed with sand and used for laying a concrete floor in the building. This condition of the cement after being returned to the surface is the rule, not the exception."

A But you are talking about something entirely different. You are talking about pumping down through tubing and up inside of the casing, and you have been talking to me previously about pumping down through the casing and up the outside of the casing, and that is different.

Q When the cement is pumped in through tubing isn't it pumped in right on water?

A No. You are talking about an area of possibly two inches or three inches of diameter against a possible diameter of 4, 5, 6, 7, 8, 9, 10, 12 or 15, and that is vastly different.

Q When the cement is pumped down and it reaches the bottom of the tubing it is then, is it not, released into the casing and the casing is full of water, and thereafter the cement comes in direct contact with the full area inside of the casing near the bottom of the well, with all the pressure of the water above and on the outside of the casing exerted against it, isn't it?

(Testimony of W. C. McDuffie.)

MR. L. S. LYON: We object to the questions along this line, your Honor. The examination of counsel doesn't even attempt to claim that the cement that could be used to mix with sand to form a concrete for a garage floor would be satisfactory cement to stand by itself as the cement forming the wall behind the casing in an oil well. It is for an entirely different purpose, and it is used in an entirely different condition. The cement used on a garage floor is admittedly contaminated with sand which would render it absolutely impossible for use in oil well cementing.

THE MASTER: I will let him answer the question.

THE WITNESS: You have been questioning me about a condition in a hole that is at utter variance with this condition, and therefore the answer in this case has no particular bearing on the previous questions, because you were talking about cement that was pumped down through a casing and brought up on the outside in a normal hole, and now you are talking about a specific hole that has got water in it and has got tubing in it and has got a casing in it, and before I could answer that I must know the size of the tubing and the size of the casing and whether or not the hole is full of water. (Question read.) I cannot answer that question without first understanding intelligently the details of the jobs. You say it is released at the bottom, but I don't know whether it is unless you tell me whether the well is open at the top or not.

Q I will refer you to the Wigle patent which has been introduced in evidence here, No. 1,057,789. I am referring to the method illustrated in the drawings in this patent, the tubing method. With that explanation I will

(Testimony of W. C. McDuffie.)

ask you to answer the question whether or not, if the cement is pumped down through the tubing without any barriers at all, after it reaches the bottom of the tubing doesn't it then come in contact with the entire area of water in the casing?

A That is a different question, Mr. Westall. I can answer that. On the assumption that the valve at the top of the casing is closed, which is shown in this drawing as No. 6, the cement will then travel to the bottom of the hole, again assuming that there is circulation outside of the pipe, and if the pumping is continued should go up the outside of the pipe and does not come into contact with all of the water, because the water will either mix with or precede it. The larger area of the casing and the specific gravity of the cement, on account of its additional specific gravity, will mix more in the larger casing than it will in the smaller.

I have never observed a job in which the cement was pumped down through the casing without the interposition of a barrier to separate the water from the cement. I have never observed the use of the defendant's process where one plug is used.

Q Then you don't know whether or not if one of the plugs of the Perkins-Double patent were omitted, say the bottom plug was omitted, and the cement is pumped in directly on top of the water, the cement would become mixed with the water that was in the casing or not, do you?

A Well, I do know that it would be quite physically impossible, that some of it would not become mixed. To what extent by the time it reached the bottom of the cas-

(Testimony of W. C. McDuffie.)

ing I can't answer. There should be less mixing of the water above with the cement than the water below the cement if both plugs were omitted.

Q That is to say, assuming that we take this Perkins and Double apparatus and omit the first barrier and you have first established water circulation, and understand the well is full of fluid, mud or fluid, and you pump the cement necessary to cement the well on top of the water, the top plug under those conditions would not act in any way to prevent the cement that was pumped in on top of the water from mixing with the water, would it?

A I should think that would very largely depend upon the amount of cement. If you had pumped in a matter of a few cubic feet of cement—I don't believe I quite understand what Mr. Westall means.

THE MASTER: He says the casing is full of water and you pump cement in on top of that and put a plug in on top. Now, that plug does not prevent the lower water from mixing with the cement, does it?

A No, it doesn't, in my opinion. There is no question but what the water below the cement would dilute the cement, in my mind, but to what extent it would jeopardize the job would probably depend upon the quantity of cement. If there was a very large quantity of cement it is probable that it would not all become diluted.

Q BY MR. WESTALL: Was it your notion or feeling or experience that there would be a detrimental mixing of the water with the cement in case of the omission of the bottom plug that led you to testify yesterday that you would not accept a license and agree to pay royalties on the Perkins patent if any license were qualified or limited by requiring the use of only one plug?

(Testimony of W. C. McDuffie.)

A I said if it was so qualified that I would cease to be interested because it ceased to be the process.

Q Suppose it was qualified by requiring the use of only a single plug and not permitting you to use both plugs, would you be willing to accept that?

A I shouldn't accept it with qualifications. I have read the Perkins patent in suit; I haven't read it recently, though. In taking a license under the patent and fixing the royalty I would insist upon the right to use the subject-matter of this patent. I wouldn't say if there were a qualification upon the entire subject-matter I would not be willing to pay the royalty that I have stipulated. What I would say was if there was a qualification upon the points which I considered the cardinal points of the patent I shouldn't accept them. If it was qualified that it would be impossible to use the plugs as barriers, I shouldn't want it. It is a cardinal point that the plug can be used as a barrier or an indicator. I consider the use of these plugs to separate water from the cement as a cardinal point of this patent.

Q And in fixing the amount of royalty that you have as a proper royalty to be paid for the use of this patent you intended that royalty to be for the use of these plugs as barriers, did you not?

A When I answered that I contemplated the full scope of the possibility of the use of plug or plugs because I can understand there are jobs where it is advisable to use a top plug as the bottom plug and to use again a top plug or to use two top plugs, one top plug being used as a bottom plug, and there are so many variations of that that in making that statement I considered the entire possible

(Testimony of W. C. McDuffie.)

scope of the use of plugs that fit casings, one below or two below, one above or two above, or one bottom plug as a bottom plug and a bottom plug as a top plug, or one top plug as a bottom plug and one top plug as a top plug. It doesn't make any difference; you can use them in series; and I can explain in detail, if it is desired, just exactly what I mean.

I stated in my direct examination that there is a hydraulic pressure on top of the plug. I mean that whenever a liquid is pumped in on top of a plug it fits a pipe and that there is bound to be put hydrostatic pressure upon that plug. I can illustrate that by saying that if the pipe were upright and plug were put into the top of it and water was poured in on top of that plug there would be pressure on top of the plug, providing the plug fit the pipe and the water did not pass by the plug.

In cementing wells under the Perkins process, at the beginning of the cementing operation for all practical purposes there may be a few feet of space that the water may not come exactly to the surface. Sometimes it is absolutely full and you have to make way for the plug, and sometimes it is down a few feet. It depends upon the circumstances at the moment. If it were not for the hydrostatic pressure above the plug I doubt if we would be able to hold any of these wells in. If we remove the mud from them they are gone; they blow out. That is in this particular territory now, and I am speaking of Santa Fe Springs and Huntington Beach. I mean the hydrostatic pressure would blow them out. That holds the gas into place, and if that gas would get to working in the cement I don't think the cement would set. If you didn't have that

(Testimony of W. C. McDuffie.)

hydrostatic pressure in the hole and the mud were out of the hole, the cement wouldn't set; I assume it would blow out too. Hydrostatic refers to water. A static head is an inert head standing. I don't refer to the pressure of the pump on that water. I refer to the weight of the liquid, whether it is mud or water—the mud fluid. If you took that water out of there I think unquestionably the cement would come back up into the pipe from the outside of the pipe, unless by chance you had seated your shoe into the formation so deeply that the actual strength of the formation would maintain that head outside and would not let it come in. As a matter of fact, we are afraid to bail the casing down itself beyond a certain number of feet, depending upon the size of the casing, for fear that this hydrostatic pressure outside of the casing will collapse it. If you have pumped your cement in and then should immediately go to bailing down on the inside of the casing, either the cement or mud or fluid would have to come back in or else it would mean that you had sufficient bond right around the natural formation to hold the cement or mud or water outside, or whatever it may be. If, after you had pumped the cement in place outside of the casing, you took the head off, this hydrostatic pressure should hold the cement in place outside of the casing.

Q And not have any pump pressure on it and there would be water outside above the cement and the cement would be pumped up outside of the casing, and the column of water in the casing without any other pressure would hold the cement in place outside of the casing?

A Well, I think again we have to consider detailed factors there. If, for instance, you had pumped a very

(Testimony of W. C. McDuffie.)

light liquid down on top of your cement you might have an unbalanced set of pressures and possibly some cement would come back in. On the other hand, if you had pumped down good, heavy mud on top of your plugs and then set your pipe on the bottom and removed your head, I doubt if any would come back. If you didn't set it on the bottom I don't know whether the cement would come back. That would be difficult to say. Theoretically it should not. In the Perkins method the normal process is to shut the pump off while the pressure is on, but, strangely, that pressure seems to dissipate within a very few minutes. I have never known a successful cementing job to be done by, instead of shutting the pump off, just disconnecting the head and taking the head off; I have never tried it. I don't know whether anyone would ever try such a thing; I am not competent to judge; but I have never tried it. In our operations we leave the head on. We have never attempted to rely upon the weight of the water in the casing to hold that cement up outside of the casing.

The bottom plug in the Perkins/^{patent}~~plug~~ is to act as a separator between the liquid which is in the pipe and the cement above, and acts as a primary indicator at the bottom of the hole, in a normal job. That is, the first plug acts as a primary indicator. I have noticed that in a normal job when the first plug hits bottom there is an acceleration of the pump pressure of 50 to 75 pounds. That gives you a line on how things are working, whether or not the pipe is split at the time of pumping down, and we know about how long it should take, and if that first plug

(Testimony of W. C. McDuffie.)

hits within the correct time we assume the job is going all right. We consider that a very valuable function, both the indicating and the function as a barrier. I consider it a valuable function as a barrier to separate the water from the cement because I think the mud and water and cement mix, and I think it is advisable to keep them as clean as possible. If you put in a few sacks of extra cement, in my opinion that would not itself act in all respects as a bottom plug so far as being a barrier is concerned. I don't know how much more cement I would have to put in. In my opinion it is not good practice to put in an amount of cement in excess of the amount of cement necessary to cement the well, to act as a barrier to prevent dilution in the bottom of the well. It might work; it might be practical. There is a further objection to that, that the more the cement mixes with the mud the thicker the mud gets and sets up additional pressures, and it may tend toward precluding the possibility of getting all your cement out. Cement when it comes into contact with the mud, due to the lime in the cement, coagulates the mud, makes it heavy and makes it difficult to move, and that mixing might run to a point where it would be harmful or hold back the possible efficacy of getting the cement in place in a minimum amount of time.

Q Then the bottom plug of the Perkins patent is a feature which is to be considered in fixing the amount of royalty, isn't it; that is to say, if you omit that first plug you would not estimate the amount of royalty so large as you would in the case of the use of both plugs?

A Well, as I stated, I think that it is good practice to use the bottom plug, and I stated further that I thought

(Testimony of W. C. McDuffie.)

the bottom plug should be used. If all operators were satisfied to do away with the bottom plug, I don't know that it would make any particular difference as regards one in business; *by* my personal opinion is toward the use of a bottom plug.

Q BY MR. WESTALL: Of course we are now cross-examining upon personal opinion as to the amount of royalties, and I am merely asking you now in effect whether you would estimate a larger amount of royalty for the use of two plugs than you would for the use of one?

A Well, as long as I had the option of using the plug if requested, I do not think it would make any difference to me. I have already testified that if there was a qualification, if I couldn't have the whole scope of the license, that I would not be interested in it, and establishing that figure of royalty was with the idea of having the privilege of the entire scope of the patent. I gave my answers as to a reasonable royalty for a certain use that was made; and then it was asked me would I start to qualify in taking a license. One was a question of a fair royalty and the other was a question of a license. I don't think I would change the royalty that I fixed for one plug if I could use the second plug. I can't quite differentiate that sufficiently in my own mind. There is a very important advantage in the use of this bottom plug. I would estimate or figure the same amount of royalty for the use of the top plug only as I would for the use of both plugs.

Q In other words, you would consider that advantage of that bottom plug not important enough to make any difference in the amount of royalty that you would estimate?

(Testimony of W. C. McDuffie.)

A No, I don't think I should draw a line. I should put it on an established royalty for the use of either one or the two plugs. I wouldn't add to the royalty for the privilege of using that bottom plug in connection with the top plug. That is entirely a new thought to me. I had never thought of any possible division of it before.

I arrived at the figure of 25% of \$250 as a proper royalty for the use of either one or two plugs in the process of the Perkins patent in suit through personal calculations on cement outfits. I at one time had a couple of outfits in the Coalinga field. I found them there when I went with the Shell Company, and I at one time thought I had a patent on cementing myself, and estimated what the cost to run an outfit would be, how much money I could make on it, and so on. I can't recall those figures out of my mind now. I only know what I personally estimated I could run an outfit for and how much profit I could make out of it. Therefore I made the statement, which I would make again, that if I could be licensed to take the business for the State of California on the basis which I mentioned I would take it instantly, and I say that without reservation. That is, I would be willing to pay the 25% royalty and still figure I could make some money. I haven't the slightest idea how much profit the Perkins Oil Well Cementing Company may make, but I believe I can run those outfits and make a profit and pay that royalty. I can't recall my figures on that. I only know I arrived at that conclusion through calculation. Certainly I have an idea how that calculation was arrived at, but you asked me to state my figures and that I cannot do. I took into consideration the cost of an outfit and the cost of pumps.

(Testimony of W. C. McDuffie.)

I took the cost of an outfit into consideration at between \$6000 and \$7000.— That outfit would consist of a truck, two pumps, and mixing boxes and necessary small fittings. I also took into consideration the cost of a man to run the outfit and go along and help, and the depreciation on equipment and interest on the investment. Those figures are something that I can't answer definitely now. I ought to be able to get a first class man to run the outfit for \$250 to \$300 a month and get an assistant for about \$5 a day, \$5 or \$6 a day. The man to run the truck is just to help. The assistant could run the truck. Say \$6 a day. The depreciation on the equipment should amount to—or as I remember it I took what we considered normal depreciation on a truck, which runs around thirty to thirty-three and a third per cent a year. Sometimes we take 25 per cent depreciation. We ought to wipe the truck off in four years. I figure ten per cent interest on the investment. After I got all of those items figured up I arrived at what charge I thought I could make. The normal charge had been, for oil well cementing, \$250.

Q What bearing did that have on this 25%? Why didn't you make it 26% or 30% or 5%?

A It all depended upon what my satisfaction would be with the amount of profit. In other words, my way of estimating royalties was that I thought I could pay 25% and still make a profit for myself, and that was the basis of my figuring this royalty. I have figured the profit I could make more in dollars in my mind than anything else. I figured if I were charged 25% royalty that I still could make on a job clear to myself, after all of these figures had been put in, around \$30 to \$40. I cannot produce any

(Testimony of W. C. McDuffie.)

of the figures; I never tried to save them. The extent of the business I would do had something to do with my estimating that. The volume of the business is bound to come into consideration.

Q How did it happen that instead of making it 10% or 15% you happened to make it 25%?

A It was what I thought was a royalty that one could pay and still make a considerable profit. It was what I considered would be a fair amount for the benefit to be derived.

MR. WESTALL: In view of the last answers of the witness I move that this entire deposition be stricken out and not considered. He is plainly merely guessing at the amount. It is just an arbitrary amount that he has guessed at. All his supposed qualifications as to other patents are not shown to have any relevance or bearing upon the present problem at all, and I submit that the testimony is clearly shown to be valueless, the witness not having been properly qualified, and it showing clearly that he has no basis at all and has produced no basis for estimating what he asserts is a proper royalty.

THE MASTER: Motion denied.

MR. WESTALL: Exception.

Q Did you consider the intrinsic value of this process in arriving at the amount of this royalty?

A I don't understand what you mean by the intrinsic value of a process. As I meant the intrinsic value, it was of a tool. I meant the cost to manufacture the tool. I don't quite understand what you mean by the intrinsic value of a process.

Q I supposed in using that term you were referring to the process of the patent in suit.

(Testimony of W. C. McDuffie.)

A We were talking about tools. You were questioning me about tools. I considered the value of this process to the industry in fixing the amount of royalty. I considered it the most successful and best cementing process and therefore of very great value to the industry, and as such that it had a distinct value. I dealt entirely with the price. I was asked a specific question with a distinct price basis. I was asked, "If it is \$250 how much could you afford to pay?" or "How much would you pay out of the \$250 as a royalty?" I might put an entirely different price upon it if I had it to give to the industry. I was considering this process distinct, as an entity. I didn't fix the value of the process; I fixed the percentage of the charge. First I had in mind what I thought could be made out of the work. I didn't consider any other processes in so far as the use of this particular type of cementing was concerned, because in so far as I was concerned I considered it the only efficacious method of cementing. I did not compare this process with any other process of cementing wells that I knew of in arriving at my general idea that this was a valuable process; I didn't know of any other good process to compare it with. I did compare it with what I knew, but I didn't know of any other good process.

Q So in making this estimate of the value of this patent and figuring the amount of royalties that you have, you have assumed that this was the only practical process of cementing oil wells; is that correct?

A Normally speaking; because, as I have testified, there are other jobs where you can use a dump bailer and so on that will work out, but for the normal use of oil well cementing I considered this as the only really avail-

(Testimony of W. C. McDuffie.)

able process. I mean in this field and other similar fields; generally speaking, for the cementing of oil wells. They occasionally use the tubing process at the present time, and they charge just as much for cementing by the tubing process as they do by this process. I wouldn't put it that they use the tubing process in cases where this process has failed sometimes, and use it successfully, and I wouldn't put it very nearly that way. I would put it this way: that there might be cases where it seemed in our mind more efficacious to use the tubing method than the Perkins straight casing method, but where we use the tubing method we use the Perkins process, because we use the plugs for the sake of measurement. In placing my value upon this patent I did not compare it in any way with a straight casing process in which no plugs whatever were used, because I wouldn't consider the use of such, because the cement would become adulterated and because you cannot possibly be sure of proper measurements. I mean to say you cannot be properly sure of your measurements. If there are cementers in the field at the present time that they are cementing wells continually without the use of any plugs at all or any barriers to separate the water and cement and they measure the cement in, I don't know anything about them. I have never heard of any operator that uses that method in casing. I am not conversant with pumping the cement through the casing, that is, using a method similar to the Perkins process but dispensing with the plugs and measuring the cement. So in placing my value upon this patent I did not compare this patent with any such method. I considered it a wholly inadequate and unsatisfactory method and I wouldn't even give it con-

(Testimony of Paul Paine.)

sideration. I have cemented too many hundreds of wells and know the variation of the pipe too well and know the human element in cementing to ever possibly conceive that that process could be properly administered.

Q Why do you say that that method could not be used?

MR. L. S. LYON: We object to that as totally irrelevant on this accounting, and immaterial.

THE MASTER: Overruled.

MR. LYON: Exception.

A In the first place, I dislike the idea of the adulteration of the cement and the fluid. In the second place, the manufacturers allow an over variation in the pipe of 5% and in a long string of casing that variation may run into numbers of cubic feet, and irrespective of meters that are notoriously inaccurate, gas and others, you cannot get an exact measurement at the time when the last part of the cement goes out of the pipe.

Q In other words, then, in considering this Perkins patent of value over such a method, you had in mind simply the function of the upper plug, or either of the plugs, of indicating when the cement had reached its proper place?

A Not only. I also mentioned the adulteration.

PAUL PAINE,

called for Plaintiff, sworn, testified as follows on

DIRECT EXAMINATION

by Mr. Lyon:

I am the same Paul Paine who testified in this case before Judge Trippet. I have been in the oil business for

(Testimony of Paul Paine.)

about fourteen or fifteen years. My first experience was in the Midway fields in California, for the Honolulu Consolidated Oil Company. I was an engineer and field worker, and became with that company a foreman, and finally general superintendent of the company. And in 1917 I went to Oklahoma in charge of the field operations of the Gipsy Oil Company, which is the producing company of the Gulf Oil Corporation.

Before going into the oil business I graduated from the Massachusetts Institute of Technology in 1905. I was with the Gipsy Company until the end of 1919, and during that time I had charge of their field operations in the Mid-Continent field, that is, in Oklahoma and Kansas and in Kentucky as well. After 1919 I branched out on my own hook. I was operating on my own behalf and with a consulting engineering business, and have continued along that line with the exception of a period during which I was in the organization and on the board of directors of the Union Oil Company, and also a period of one year that I was vice president of the Shell Company of California. At present I am operating on my own behalf in California. I am not drilling any wells down in this field.

From May, 1921, to June, 1923, I had knowledge or experience in or about the Southern California fields of Huntington Beach, Santa Fe Springs and Long Beach. I returned to California in the autumn of 1920 and have been in California practically all the time since then, with the exception of several months in the Mid-Continent field and in Europe, and during that time I have been in more or less touch with the development operations in Southern

(Testimony of Paul Paine.)

California. During the period from June, 1922, until June, 1923, I was vice president of the Shell Company of California and in charge of the field operating and the business which had to do with the drilling of the wells. Prior to June, 1923, I had the position Mr. McDuffie now has; he succeeded me.

MR. L. S. LYON: I would like to state, for the Master's benefit, that this witness explained the Perkins method to Judge Trippet by means of a blackboard, and his testimony shows that he is thoroughly familiar with the Perkins method and has used it, and so forth.

THE WITNESS: I have given consideration to what would be a moderate and equitable royalty for the use of the Perkins process of cementing. The matter came up either in 1916 or 1917, when I was superintendent of the Honolulu Consolidated Oil Company of the Midway field, and at that time I was cementing our wells with our own cementing outfit. Our operations were great enough to warrant maintaining an outfit of our own, and we used a method quite dissimilar to the present Perkins process, but we did use a plug in the hole. I was told by someone at that time that Perkins had a patent and in the course of discussions of various business matters with my company I remarked of that fact to one of the company officials who was in the field from San Francisco, and said that possibly Perkins might be coming down on top of us sometime because of the fact that we were doing our own cementing. I knew nothing whatever of the merits of any patent contention as far as that was concerned, but I suggested the possibility that it might be found necessary to make a deal with Perkins by means of which we might

(Testimony of Paul Paine.)

get the use of the patent rights if they existed, because I was desirous of continuing to do our work with our own outfit. We had some discussion and the matter was simply left in my hands, that if Perkins came along and showed us what he had in the way of a patent and it was considered necessary to make a deal with him, that I should go ahead and make a trade with him and to pay him a royalty, but if possible not to have him do the work for us, and at that time I was given by the Company an upset limit of \$50 per well to go to him as a royalty. The matter never came to a head, and that was the only consideration that I have given to that feature. It was simply left that we would, if necessary, make a deal with Perkins, paying him \$50 a well.

I am familiar with the method that is employed by the defendants and adjudged to infringe in this case, in which the defendants have eliminated the use of a bottom or lower plug and employed either a shoe guide or a ring or a spacer to arrest the top plug in the casing and add a small quantity of liquid cement above the top plug.

Q I will state to you that the account filed by the defendants in this case shows that between approximately the 1st of May, 1921, and the 1st of June, 1923, they cemented by such infringing method in the Southern California oil fields approximately 280 wells; and I will ask you to consider the nature of the Perkins method which is the subject of the patent in suit, its utility and advantages, and give your opinion as to what would be a reasonable royalty for the use of such patented method by the defendants in the manner and to the extent stated.

A I would count that a moderate and a reasonable royalty would be \$50 per well. I base that opinion upon

(Testimony of Paul Paine.)

the value of the process and as to what it generally cost to do the work and the fact if I could get the right to use the process for \$50 a well I could make money with it. I would have to do some figuring as to what would be the maximum royalty. I would consider \$50 as a moderate and reasonable royalty and one that would be entirely equitable. I figured I could get \$250 per well for doing the work. My royalty rate is based on the prevailing list price for cementing, if I could go out and rustle enough work at \$250 so that there would be a nice profit in it.

Of course the values involved or the costs involved in the drilling of these wells in Southern California are so great that it is difficult to measure the real value of either the complete cementing job or the royalty right. The wells are much deeper, of course, and in many respects more difficult to drill than the wells which were drilled five and six and seven years ago, and some of the cementing methods which we then used would be certainly unwise to employ, and I doubt if in fact they could be used. Certainly I would not desire to experiment with them on the drilling of these wells in Southern California, if the Perkins method were available.

On

CROSS EXAMINATION

by Mr. Westall the witness testified:

My first experience in cementing oil wells began in 1910. I was not familiar with processes which had been employed, except from hearsay perhaps, prior to October 27, 1909. In fixing the amount of royalty I first considered the question in 1916 or 1917. At that time I was cementing wells by the tubing method, using a plug, going

(Testimony of Paul Paine.)

down in the tubing. That was in 1916. I used that plug in the tubing to follow down on top of the cement, to push the cement ahead of it, and to act as a separating agent between the cement and the water which pushed it down. I had a swedged nipple at the bottom of the tubing. Then the plug went into the swedged nipple, and when that hit the bottom of the tubing it stopped our pump. To answer your question as to how the measure of value was reached at that time, we were using this tubing method and had a considerable quantity of cementing work going on, and I had been informed that Perkins had a patent which covered the use of any plug in a well for the purpose of separating the cement from the water, by means of which it was introduced into the well. As I say, I knew nothing whatever about the merits of this thing, but since there was some possibility that Perkins might come around and bother us I had a discussion with Mr. A. C. Dieriox of San Francisco, who was an official of the Company and my superior. The conversation which we held at that time I can't recall, but I can be quite sure that the train of thought was as follows: that Perkins was charging some \$200 or \$250 per well for cementing the wells; if Perkins' patent could prevent us from doing our own cementing so that we had to call upon him to do the work that we might better afford to pay him a royalty and to continue to do our work than to have him come in and do it, because we could do it cheaper, even though paying a royalty. The amount of \$50 could not have been reached in any definite, tangible way, or from any specific line of figures. It was simply a broad figure that was my conclusion at that time as to what we could afford to go to. I

(Testimony of Paul Paine.)

knew nothing about the patent value technically or the scope of the patent at the time I figured on paying that royalty. I had not seen the patent and had not had the matter reviewed and had not figured on paying the royalty without having a review of the subject made. I understood that Perkins was charging \$250 at that time, and I figured \$50 was what I could afford to pay rather than to employ him to do the job. It is not correct that I figured it would be cheaper and better for us to make some such arrangement as that than to run the risk of being subjected to a suit for infringement. I figured that if Perkins came to me I would then have the matter reviewed by our own attorneys, of whom we had a great many at that time, and then in case his patent did in their opinion stand up, why, \$50 was the measure of what I would try to horse-trade with him on.

I have never had any experience in estimating or fixing amounts of proper royalties to be paid upon other oil well and cementing apparatus or processes. In the 1916 negotiations or my consideration at that time I made no examination of patent papers or anything of that kind, nor did I make any comparison with any other prior art methods that I might have employed. I was getting by doing my own cementing with a method that under our operating conditions was giving us satisfactory results.

Our wells generally were 2600 to 2800 feet, and our cementing string was usually landed at around 2200 to 2400 feet. Occasionally we would have a well as deep as 2800 feet, but 3000 feet was a deep well with us; and we cemented two strings of pipe in those wells because we had a very high pressure of dry gas to combat and that

(Testimony of Paul Paine.)

was the gas which we were supplying to Los Angeles at that time, and it was necessary to protect that.

I had been using that tubing method with the swedge nipple from the spring of 1911, and I used that method continuously until I left California in 1917, except that I eliminated the plug, and pushed the cement down with water and estimated the amount of water necessary to fill the tubing and measured that water in a tank, and when that much water had been pumped in the pumping was discontinued. I was simply told of that method of the use of the swedge nipple and the plug in the spring of 1911, but had never observed it prior to that time. I had never seen it used until the spring of 1911.

Q You have stated that you dispensed with the use of this plug in the tubing. Did you find that the water did mix with the cement when you left that plug out so as to in any way interfere with the successful outcome of the operation?

A You have two questions there. As to whether it mixed I can't tell you because I had no means of observing what happened down at the bottom of a deep well. As to the second portion of your question, I would say that we obtained very satisfactory results with that method. If that method is being used in California at the present time, I don't know of it; but it may be used in other places. I never pumped the cement directly through the casing without the use of any tubing; never did that at any time.

In fixing or estimating the present royalty for the Perkins patent, two considerations of chief importance are, first, the costs and values involved in connection with

(Testimony of Paul Paine.)

the wells that are drilled, and therefore the importance of using the most dependable method that may be obtained in order that the hazard may be reduced as far as possible; and the second is the price of \$250 that is charged for cementing a well. Neither of these features can be specifically translated into detailed figures, and the amount of \$50 per well is merely a composite effect of a consideration of those factors. I cannot follow out a complete chain of computations if that is what you require.

I would consider \$50 as a moderate royalty. As to what constitutes a proper royalty I don't know, because I don't know the law in such matters.

Q So far as you know there is no definite rule or method by which you could arbitrarily say that \$50 or \$60 or \$49 was a proper royalty; it is more or less a matter of just arbitrary fixing, isn't it?

A No, you are wrong. As I said, at \$50 royalty I would be very well satisfied in my own mind if I could engage in the cementing of oil wells and make it highly profitable in Southern California. In fixing a royalty I do not fix an amount which would enable me to stay in business and make a profit. That is just one measure of it. It could be fixed at \$25 or \$75 or \$33.50 and still one could make a profit at cementing wells. If it were fixed at \$25 you could make just that much more profit. If you fixed it at \$100 I think I could make a profit. I think so enough that if I had an option on the use of it at \$100 I would be willing to spend considerable money investigating the merits of embarking in the business. I don't think I would attach too much importance to an exclusive license. If Mr. Perkins kept the price at \$250 I might figure on

(Testimony of Paul Paine.)

going into competition with him at that figure. If I could get an option on the right to embark in the business in Southern California at a royalty of \$100 I would be willing to go out and investigate it and go into it thoroughly, because I don't think that having exclusive rights always benefits one. I don't know whether they charge approximately the same price for cementing a well by the tubing method.

(Adjournment was had until October 25, 1923, at 10 a. m., at which time the witness testified further as follows on further Cross Examination by Mr. Westall:)

I don't know how long the price of \$250 for cementing wells has prevailed in this locality in California, because in the early days I was not having the work done by a cementing company. It is my recollection that the price was \$250 back in 1914 and 1915, but I had no work done myself at that time. I don't know whether that price covered other methods of cementing or not except in this respect, that a man named Scott was cementing in the Midway field in 1915 and 1916, and he quoted me a price of \$250 at that time for cementing by the tubing method, using a plug in the tubing, along lines similar to the method which I was using at that time. Of my own knowledge during the past two years I have known of the price as \$250. The only price I have known of has been the price of \$250 charged by the Perkins Company for their work. I have no knowledge whatever of prices charged by anyone other than Perkins for cementing jobs in the last two years.

I cannot give you the exact depth at which I have attempted to cement a well by the tubing method. I am

(Testimony of Paul Paine.)

quite sure that I have put cement into a hole at depths around 3000 feet, but very little deeper. I think those jobs I have in mind were successful.

Q And do you know of your own knowledge and your own observation whether or not it is practical and common to cement wells by the tubing method that are 3000 feet deep?

A That question would have to be more specific to call for a general reply because the operating conditions would govern. Unquestionably in some of the Mid-Continent fields it could be done quite readily with the tubing method. In other districts in the Mid-Continent field and in many districts in California I would consider it unwise to use the tubing method at depths greater than 3000 feet. We cemented wells at 2600 to 2800 feet right along successfully as a matter of common, everyday practice. I would not say it is practical in almost any field and under almost any conditions to cement a well by the tubing method which was 2600 to 2800 feet deep. Almost any field covers so much territory that I couldn't vouch for being able to use the tubing method in almost any field at those depths, because many fields have conditions of caving formations which cave in around the pipe to such an extent that the pipe when put into the hole is kept free, that is, may be moved upward and downward readily and a circulation of fluid around the pipe maintained only with great difficulty; and the time which elapses in running in the tubing into the hole might very well, and frequently does, occupy a sufficient time so that the pipe would become frozen or the circulation would become lost; and for that reason I would not consider that the tubing method

(Testimony of Paul Paine.)

could be laid down as a universal panacea for cementing even at 2600 or 2800 feet. Under the circumstances and conditions I have mentioned, where it is difficult to maintain circulation on account of caving of the well, I would use a method which took just as little time to put into effect as is possible once the casing has been run into the hole. My own choice would be and has been the Perkins method.

I have never had any experience in the use of a process similar to that of Perkins, that is to say, after circulation is obtained the cement is put into the well and forced up by pump action up outside of the casing, and no plug whatever used. I would say that method would not be feasible; it would not be advisable. In my own mind feasible means that it might be done in some instances but not enough percentage of cases to make its use advisable. But I have had no actual experience in the use of such a process, omitting plugs. The first consideration in non-feasibility of cementing a well without the use of plugs would be the use of a plug as a separating medium between the cement and the other fluids. The second reason would be the use of the plug as an indicating agent, to inform us when the cement is all out of the bottom of the casing. The third reason would be the use of the plug in informing us if the casing has been split. The plug would inform us if the casing was split because the plug would not go readily to the bottom then, and the fluid would pass out through the opening in the casing and come to the surface, and in that case the plug would not reach the bottom and then stop the pump. If there were a split in the casing then

(Testimony of Paul Paine.)

the plug would not stop the circulation of the fluid. It would be very unusual for the plug to be stopped by the breaking of the casing. You would know that there had been a break in the casing because the plug would not stop the circulation of the fluid. The fluid would then pass out through the split in the casing instead of going on clear down to the bottom of the casing and coming out. Under those circumstances there wouldn't be any method used to complete the cementing. We would pull the casing out and replace the split joint with a new joint.

I consider the function of the plug acting to separate the water from the cement a desirable function, but not absolutely vital. I do not believe if the cement were not absolutely separated from the water it would not necessarily jeopardize or impair the cementing operation. I think that in many instances, or in some instances, one could take a chance of getting along with-out a plug and estimate the amount of fluid that is pumped in, but it would be largely guesswork and would not have the positive character that the use of the plug gives to the method.

I have had experience in measuring or estimating the amount of cement into a well in the use of the tubing method. I found it entirely successful in that instance; but I account for that by the fact that the amount of water to be measured in that case is very much smaller than the amount of water which would be necessary with the use of the casing, and it is therefore susceptible of much closer control. There would be that difference in the amount of water chiefly because the area of a 2-inch

(Testimony of Paul Paine.)

tubing is much smaller than the area of a 6-inch or 8-inch or 10-inch casing and because the water may be measured readily with the use of tubing. The amount of water required is comparatively small, whereas the amount of water required to fill a string of 6-inch or 8-inch or 10-inch casing is very much larger and would present mechanical difficulties in the field operations. There is very little variation in the cubic contents of a 2-inch tubing; they all run very close to size.

At the beginning of cementing a well by the tubing process you first obtain a circulation down the tubing, and the tubing is in the casing, and then the circulation goes up the space outside of the casing. The space inside of the casing is filled with mud and water and the stop is put on the top between the casing and the tubing. The space at the top of the hole between the casing and the tubing is closed off with a packer. That space is filled with liquid, and, the liquid being incompressible, the fluid which is pumped down inside of the tubing must come up on the outside of the casing. The cement cannot come up into the water and displace it. The cement is going to go in the direction in which it can flow, and since the space between the tubing and the casing is already filled with mud water it is going to remain quiet. If this space between the casing and the tubing were not filled with water, then some of the cement might come up in it, but water is incompressible and the fluid therefore passes outside of the casing and up between the casing and the wall of the hole. In either the use of the tubing method with a tight head or the casing method, in which you pump through the casing and not a tubing, and have a

(Testimony of Paul Paine.)

tight head on the casing, the well is full of water. You naturally would measure the amount of cement in in both cases.

Q What particular objection would there be then to dispensing with the tubing and pumping the cement directly through the casing without any tubing and pump it up outside of the casing?

MR. LYON: We object to that as irrelevant and immaterial in this proceeding.

THE MASTER: I will overrule the objection on the basis that it will be shown that it is a part of the prior art.

MR. LYON: Exception.

A My objection to that would be twofold: first, the absence of the packer would fail to tell you with positiveness when the cement had passed out of the bottom of the casing, except in so far as you relied on computations of the amount of water pumped in; and, second, the cement would be expected to lag along on the sides of the casing to a certain degree, causing a mixing of the water and the cement, whereas the packer exerts a certain degree of scraping influence on the side of the hole and keeps a cleaned separation of the cement from the mud water. As to the extent the cement might mix with the water if the plugs were dispensed with, I have no definite experiments or observations on this particular point, except the common knowledge that there would be a lag along the inside of the casing. The flow of the fluid is fastest in the center of the pipe. I think in the tubing method there would be even a greater lag and more of a ten-

(Testimony of Paul Paine.)

dency of the cement to mix with the water by reason of that friction than there would be with the casing.

Q So that if it is possible to successfully cement a well with the tubing method without any plug, and you find that it can be done without the detriment or objection that you refer to, would that not be a reason for assuming that you could also do so with the casing method without any tubing?

A No. In the first place, while your percentage of lag of the fluid in tubing might be greater, yet the actual area presented to the cement is much greater with casing than with tubing, the tubing having usually a diameter of 2 inches or $2\frac{1}{2}$, whereas casing which is commonly cemented has inside diameters of 6, 8 and 10 inches. I think there would be more cement remain behind when pumping down in the casing than when pumping down in the tubing, and there would be a greater measure of dilution and mixing of the cement with the fluid. I am just giving you the best I can on it. My judgment in this matter is what would prevail in drilling my own wells and in spending my own money.

This matter of friction and the passage of fluid through pipes is a matter of which engineers have knowledge. For instance, in connection with the matter referred to, it is established beyond any question of doubt that in the passage of fluid through a pipe the velocity is greatest at the center of the pipe. It is not correct to say that the question of friction down in a 3000 or 4000-foot well is something that calls for mere speculation, with no actual knowledge of what the result would be. The knowledge which we have as to the flow of

(Testimony of Paul Paine.)

fluids in pipe would obtain as to mud water, water, oil or fluid cement, and we know that as to the passage of all fluids through pipe the velocity is greatest at the center.

I do not know what proportion of the cement being pumped down through a tubing or a casing would become diluted with the water to such an extent that it would not harden and would not form a proper shut-off if that cement were used outside of the casing.

As to why I think you can leave out the bottom plug without a vital objection, whereas you can't leave out the top plug without a vital objection, the dilution at the bottom is not going to be of great importance, but the lag of the cement on the inside of the casing as it goes down the hole, with the resulting dilution of the cement with the water at the top of the column of cement as it goes in, means that the condition of the cement will be uncertain at the bottom of the hole when that cement has gone out of the casing and risen in the hole, because what was then the top of the column going down inside of the casing rests at the bottom of the hole. I do not think that lag on the inside of the casing would be sufficient so that the lower water would come up through by reason of the lag of the cement, but the cement that lags on the inside of the casing would become mixed with the mud water which is pushing it down. This is in a consideration of this column of, first, mud water, then on top of it cement, then on top of it water, all being introduced into the hole without the use of any plugs whatever. It would be the top water that would make the dilution of the cement where you want your bond. If you put in suf-

(Testimony of Paul Paine.)

ficient cement you would have enough there if you kept enough up above the bottom of the hole on the inside of the casing; but it is desired to get as much of that cement as possible outside of the casing at the bottom and not leave it inside of the casing. Under those circumstances there would be no way of telling where your good cement was and what was bad cement. There would be nothing positive about the cement around the bottom of your pipe.

Q Assuming that we leave off the top plug, and assuming that you are correct that there would be more dilution from the top water by reason of this lag in the cement, would it not be merely a question of adding a few more sacks of cement, which cement would perform the function, so far as preventing dilution was concerned, of the top plug, that is, would form a barrier to prevent the water from coming in contact with the cement that was actually intended to be put up outside of and around the bottom of the casing?

A Well, this additional amount of cement to which you refer in no wise differs from the original body of cement. You estimate that you need about so much cement, that is, you measure it. If you pile in a few extra sacks to prevent dilution of the top portion of the cement, as to that performing the function of a plug in preventing a dilution of the cement fixed around the bottom of the casing, one would not know then when the good cement, which has not become too much mixed with water, has gone outside of the casing, and what portion of it may remain inside of the casing.

Q If you could definitely measure your water so that you would know and you would leave, say, 20 feet of

(Testimony of Paul Paine.)

cement or 30 feet of cement at the bottom of the pipe there, wouldn't that extra cement prevent the dilution?

A The measuring with that degree of exactness would be very difficult and one might well either have one of two conditions exist: have that fluid which remains outside of the casing at the bottom of the hole contain too much water to permit a good set of the cement, or might have not enough of the cement pass to the outside of the casing so that the inside of the casing is full of cement which sets, and that is not desirable.

Q That might break the casing then, might it?

A And in drilling it out one might have some difficulty. That is frequently done and we never know whether it causes the pipe to have holes cut in it or what happens down there definitely; but what is desired is to have the good cement just outside of the casing at the bottom of the hole with the fluid that is left inside of the casing sufficiently free of good cement so that it is not going to set with a tight bond, and that is the value, of course, of the plug, because it tells the story as to when the cement has passed out of the bottom of the casing.

As to the exhibit which has been introduced here, Bulletin 163 of the Department of the Interior, "Methods of Shutting off Water in Oil and Gas Wells," by F. B. Tough, I can't say that I have read every word in it, but I have looked through it and read portions of it. I can't say now whether I agreed with the statements and matter in this book.

Q At page 50 there is a heading, "Casing Method Without Plugs or Barriers," which is discussed very

(Testimony of Paul Paine.)

fully, and on page 52, after discussing the subject generally and giving a number of instances, one instance in which the hole was 4135 feet deep, in the Coalinga field, and discussing the amount of cement that was used, the author says near the top of page 52: "The conclusion seems justified that when cement is pumped down inside the casing 10 inches in diameter or smaller, without the use of plugs or barriers, the cement mixture and the other fluids in the hole tend to intermingle, though as a rule this intermingling is not serious, particularly when the cement has originally been mixed with only a small proportion of water." Do you agree with that statement?

A No, I would not agree with that statement.

Q Then appears the following: "The second question as to how to determine the time to land the casing brings out a serious weakness in the method. As either a meter or a gage tank may be used, the relative accuracy of gaging or metering the wash water is not the question at issue. Considering that such gaging is usually done in 50-barrel or 100-barrel tanks that have been dumped off the trucks numerous times, and had their sides dented, to be afterwards driven out to restore more or less the original shape of the tank, the writer thinks the relative accuracy of the two systems is about the same. The meter is more easily read than the low gage wet line mark on a notched stick, particularly if the cementing is done at night. The use of the meter also reduces the chances of error by eliminating one set of computations. All things considered, assuming no errors in computations, the general average of ten cubic feet of allowable variation between the volume of measured water and the actual

(Testimony of Paul Paine.)

capacity in a 2500-foot hole of 10-inch casing is a close limit. This is an allowable error of about 0.7 per cent, and is here applied alike to both methods of measurement. 10 cubic feet in 10-inch casing occupies about 18 linear feet; that is, an operator's computations should allow for leaving at least 18 feet of cement in the casing to obviate the possibility of washing the cement away from the shoe. He may find either no cement or about 36 feet of it in the casing, according to whether the allowable error has been plus or minus. Many operators do not object to this feature, and sometimes require that 10 to 20 feet of cement be left in the hole.

“There are two causes for such a requirement: first, the fear that too much water will pump the cement not only to the bottom but up outside the casing and away from the shoe joint to a point where it is not needed. An excess of water will undoubtedly produce such a result. The second cause is the claim that the latter part of a batch of cement is ‘mushy’ and had better be cleaned out of the hole later than to be put behind the casing and not do its work. This contention is supported by the results at numerous wells, where the cement left inside the casing had a few feet (at some wells 20 feet) of mushy, chalky deposit on top, the underlying cement being set hard. So firmly is this conviction held by some operators that even when using the two-plug method they drop a timber four by four inches by 20 feet in length into the casing between the plugs, which will stop the second plug 20 feet above the first, thus leaving this amount of cement in the bottom of the casing.. This practice does not refer to instances where a timber, say 10 feet long, is used to

(Testimony of Paul Paine.)

obviate the danger of both plugs escaping from the casing.”

Do you agree with these statements?

A I can't pass on those statements as to the convictions expressed by other people and so on. I can say that working at the oil fields with a degree of exactness in the range of 0.7 of one per cent is a greater degree of accuracy than we are usually able to obtain under the working conditions and with the conditions that we have to meet.

(The following further quotation was added by Mr. Lyon: “If some form of casing method is to be used, the writer would prefer the two-plug system without the use of a timber between the plugs, unless, owing to certain peculiar conditions of the hole, such a timber should be necessary to prevent the second plug as well as the first from escaping.”)

THE WITNESS: I can say that I knew the writer for a good many years at the time that he had supervision of the cementing operations of the Southern Pacific wells in the Midway field, and I never knew him to use the method of putting the cement in without the use of plugs.

Q Now, is it not a fact that a successful cementing job could be performed without tubing, pumping directly through the casing and without the use of any plug, and that it is merely a question of putting enough extra cement in to be sure that the dilution you have spoken of does not work to the detriment of or so as to jeopardize the job in any way?

(Testimony of Paul Paine.)

MR. LYON: That is objected to as irrelevant and immaterial.

THE MASTER: The objection is overruled.

MR. LYON: An exception.

A No. This work can be done this way, and in some cases a successful job may be effected; but, as I said before, dispensing with the use of plugs introduces a hazard that is unnecessary and would be a step backwards. In giving that testimony I am not dependent upon any actual observation of the use of that process; I am just answering your question, as to my judgment in the matter.

Q Do you know, as a matter of fact, that that method of cementing wells, without the use of any plugs, is being successfully used at the present day?

MR. LYON: That is objected to as irrelevant and immaterial and not cross-examination, and as having been fully answered by the witness.

THE MASTER: The objection is overruled.

MR. LYON: Exception.

A No, I do not know of that method being followed. When only the top plug is used there must be some mixing of the bottom water with the cement, but it is not to be expected that it will be as great as the mixing of the cement with the top water.

Q And in the use of the one-plug system, the plug used on top of the cement, one would naturally correct that tendency to mix at the bottom by the use of an extra amount of cement, would he not?

A I do not see how an extra amount of cement is going to alter the condition of the column that goes down

(Testimony of Paul Paine.)

in the hole, where there is, first, the mud water, then above it the cement, then above that the column of mud water, which pushes it down. Now, if that cement is increased by an additional quantity of cement it simply increases the length of the cement column. The mixing will not be as great at the bottom as at the top, because the cement is more dense and will tend to drive the mud water ahead of it when going down the hole much more than the mud water at the top will tend to drive the cement in a compact body ahead of it.

Q What I mean is this: that in using this one-plug system, using the top plug and knowing or having the opinion which you apparently hold, that there will be a dilution of the cement that comes in contact with the bottom water, you would add a sufficiently large amount of cement to take up for that dilution, would you not? That is to say, you would know that a certain proportion would become diluted by the bottom water? Now in order to take up for that you would add a little more cement, would you not?

A That could be done. I do not think as an operating practice I would pay any attention to that; that is, if I were putting in 200 or 300 sacks of cement the operation would not be conducted with a sufficient degree of accuracy for me to feel that I could add a few more sacks of cement and accomplish that result, because, after all, we do not compute right down to a fine point the cement we put in, generally; we say we will run 60 sacks or we will run 100 sacks or 150 sacks. We have to allow enough cement over and above the exact calculations to be sure that if there is some little dilution we will have enough

(Testimony of Paul Paine.)

good cement in there; and we feel that the dilution at the lower portion of the cement when it is being run into the hole is of lesser importance, because that mixed and sloppy collection of mud water and cement is going to be at the top of the column when the cement has passed outside of the casing. If one calculates, when he omits the top plug, or measures out enough cement so that he will have 40 or 50 feet of cement in the bottom of the casing, he does not thereby remove all objections to the omission of the top plug, because, in the first place, he leaves a large quantity then of cement in the inside of the casing at the completion of the job, and he is deprived of the use of the plug as an indicating agent for telling when the cement has all passed out of it and for the detection of splits or imperfections in the casing.

Q Please explain how the plug would assist in discovering or giving notice of splits or imperfections in the casing.

A When the column of first mud water, then cement, then the top plug, if the top plug only is used, and then on top of the top plug more mud water, is being pumped down the hole, if the casing is tight the only means for this fluid to pass out of the casing is found at the bottom of the string of the casing. If there is a split in the casing through which the fluid may pass readily, this fluid will then pass through that opening and come to the top on the outside of the casing instead of going down and around the casing shoe. Now, when that is the condition the top plug, upon passing by this split opening, will cease any further motion; it will tend to remain quiet or go down very slowly, and the fluid will continue

(Testimony of Paul Paine.)

to pass through the split and come to the surface. In that case the plug then does not reach the bottom of the casing, and through closing the opening stop the pump, and in that way it indicates. In other words, you keep on pumping indefinitely and the plug apparently never reaches the bottom. After a period when the plug should be reaching the bottom of the casing and stop the pump we find that it does not do so; and we observe further that the fluid pumps with a smaller pressure—it doesn't have to overcome as much friction factor. Observation gives rise to our expectation that the plug will reach bottom in a certain time. We know about how long it takes to pump it in and get all the cement in and to have the plug reach the bottom. It might be ten minutes, and it might be thirty minutes, depending upon the depth of the hole and the rate of pumping. We do not make a calculation in the usual sense of the term, of the time it will take for the plug to reach bottom, but merely our sense of the time that is required as we have derived it from going through a number of such operations; but it is not figured out in minutes or seconds—or at least I have not attempted to do so. The depth of the well, the size of the casing, about where the water is to be shut off, and how much cement will be necessary to effect a shut-off, are all factors considered by the cementer even when he uses the plugs, but they are not, so far as I know, ever calculated to a certainty, because there are many more factors in addition to those which you have named, namely, the friction factor which would be obtained in the pipe, the pressure that is applied to the pump, the rate of pumping speed, the size of the openings, the

(Testimony of Paul Paine.)

number of connections between the pump and the top of the casing—all of those factors would influence the rate at which the fluid goes down the hole.

Q And all of those factors would be considered to some extent in enabling the operator to calculate to some extent when that plug would reach the bottom of the casing, or when it should reach the bottom of the casing?

A They might be considered by him, or they would preclude his determination of when the plug would reach the bottom. So far as I know that would be impossible of ascertainment definitely and accurately.

Q Suppose there is a split in the casing; please state how the operator knows that.

A He has a well of a certain depth, and a casing of a certain diameter, and he is putting in about so much cement. He knows, by reason of similar jobs that he has done, that the time required for the plug to reach the bottom is possibly between 15 and 20 minutes, something of that order of magnitude. Now when that period has elapsed and the plug does not reach the bottom, he begins to worry. He also may observe that his pump pressures are easier than they should be as the plug is approaching the bottom of the hole, and that will frequently be his first warning that there is a split in the casing.

In estimating or figuring the proper amount of royalty I have done so with the opinion or conviction that it was not practicable or desirable or feasible to cement wells without the use of one or two plugs in a large majority of instances here in Southern California.

Q So that if you are mistaken and if it is practical and feasible to cement wells without these plugs, then

(Testimony of Paul Paine.)

your conclusion as to the proper amount of royalty would not be sound; is that correct?

MR. LYON: That is objected to as irrelevant and immaterial for the reason that there is not a proper standard of comparison suggested by counsel.

THE MASTER: The objection is overruled. I think the witness can take care of that.

MR. LYON: Exception.

A Why, as far as my knowledge goes I would at the present time prefer to pay a royalty and continue to use this method over taking a chance on a well with any other methods that I know of. Now, there may be other methods, and it may be possible to show them to me and prove them to me, but the values involved are so great with a well that has cost say \$60,000 to \$80,000 or more that I would not allow an amount of that kind to interfere with my using what I consider to be the best safeguard for my well. I consider this is the most satisfactory system in use today, and I am going to stay with the bridge that carries me safely over. The drilling of an oil well is full of hazards, a great many difficulties are constantly met and have to be overcome, and it is necessary that just in so far as we possibly can we eliminate or reduce these hazards. Now, in cementing a well I would be very happy to pay a royalty of \$50 for the use of the Perkins method over using any other of the methods that I know of in Southern California. That includes this suggestion of the method without the use of any plugs at all.

What I know about the Halliburton measuring line is what was related to me about it in Oklahoma. I have

(Testimony of Paul Paine.)

never used it. I did not testify in the Oklahoma case, but in Ardmore, Oklahoma, I met one of the Halliburton men at one time and he told me about this measuring line device they were using. That is the only contact I have had with it.

I am not related to Mr. Perkins or anyone interested financially in the Perkins Company; and I have no interest whatever, either directly or indirectly, in any of the business affairs of the company. I suppose I will be paid my fees as an expert to testify in this case. I haven't been paid anything. I haven't even discussed the matter of payment. I have testified previously for Mr. Perkins and was offered pay by him and declined it. I have no interest financially or otherwise in this Perkins patent. I have testified frequently as an expert in oil cases. Pay for my services as an expert witness is one of my sources of livelihood. I didn't take Mr. Perkins up because at that time I was vice president of the Shell Company and I was receiving a salary from the Shell Company, and at the time I went to work for that company my arrangement was that I would keep what personal interests I had (that is, I have interests in producing properties and in oil wells) but that I would not undertake any new ventures or undertake any outside practice professionally, so I came down for Mr. Perkins to testify on the matter as an act of good will, I suppose.

I had nothing to do with fixing the price of \$1,000,000 that the Shell Company paid for patent 1,070,361 granted to the Trumble Refining Company and assigned to the Shell Company July 2, 1915; that was long before my day with the Shell Company. My first work for the Shell Company began in 1922.

(Testimony of L. J. Whitney.)

On

REDIRECT EXAMINATION

by Mr. Lyon the witness testified:

In figuring that the Honolulu Company could afford to pay \$50 rather than turn over their cementing to Mr. Perkins at \$250 a well, that \$50 was just a portion of the profit. I kept in detail the costs on cementing jobs, but \$50 was so far inside the limit that I felt entirely safe that we could pay that and still have a considerable profit in doing our own work.

L. J. WHITNEY,

called for Plaintiff, testified on

DIRECT EXAMINATION

by Mr. Lyon:

My name is L. J. Whitney. I am the L. J. Whitney who testified in this case before Judge Trippet. I am assistant to the president of the Perkins Oil Well Cementing Company, and as such have charge of the original records and books of the Perkins Oil Well Cementing Company.

The letter which is shown me, dated August 30, 1921, from the Standard Oil Company to the Perkins Oil Well Cementing Company is an original letter taken from the records of the Perkins Oil Well Cementing Company. The red slip attached to it is a duplicate bill that was retained in the office, of the original, sent in response to this letter.

(Letter and annexed bill marked Plaintiff's Exhibit 65.)

(Testimony of L. J. Whitney.)

That bill was paid as rendered as shown by the records of the Perkins Oil Well Cementing Company. This bill was sent out on the date it bears, September 30, 1921.

I have the orders received for the use of the Perkins system and the furnishing of plugs therein by the Perkins Oil Well Cementing Company for the territories and instances shown on the statement which has been offered for identification in this case, except one or two where the original order was not furnished and the material was taken by the company direct from our plant and the well report sent in by the man in charge. I want to make this statement in connection with these orders, that the date appearing on the statement itself is not necessarily in all cases—in fact I think in practically no case—the date that appears on the order, for the reason that the order, of course, is mailed from the point from which it is sent and the date given on the statement is the date of our invoice on which the material was shipped and charged.

I made this tabulation, consisting of three sheets, marked for identification Plaintiff's Exhibit 64, from the records of the company, and it is correct, subject to the statement that I have tabulated the amounts received for plugs as distinguished from the amounts received for royalty.

MR. LYON: We ask that Plaintiff's Exhibit 64 for identification be received in evidence as Plaintiff's Exhibit 64, and that the three illustrative order sheets be received as Plaintiff's Exhibit 66, three sheets.

MR. WESTALL: They are objected to as incompetent, irrelevant, and immaterial, this objection going to

(Testimony of L. J. Whitney.)

the entire offer; and on the further ground particularly that Plaintiff's Exhibit 64 for Identification is not the best evidence of division of the \$100 into price of plugs \$50 and royalty charge \$50. And the further objection is made on the ground that there is no best evidence of any agreement of anybody to pay \$50 for the use of this process, and that the price of the plugs is entirely irrelevant and immaterial.

THE MASTER: The objection is overruled. The three orders will be received and marked Plaintiff's Exhibit 66, pages 1, 2 and 3.

MR. WESTALL: Exception.

On

CROSS EXAMINATION

the witness testified:

I have charge of the office of the Perkins Company. I have had that connection with the plaintiff about a year and a half. I have charge of the books and correspondence and matters of collections and general matters of business that may come up, and any special duties that may be assigned to me.

I don't know that there are any letters signed by anyone where such person agreed to pay \$50 royalty for the use of the Perkins process in suit; but the matter has been always understood by conversation with responsible officials of the ordering companies and our company that the sale of plugs, where we didn't do the work, at the price of \$100, always carried with it the right to use our process, and the royalty has always been understood and considered by us from the very beginning of the company to be \$50, and that the price of the plug was \$50.

(Testimony of O. G. Miller.)

MR. WESTALL: In view of the answer of the witness I move to strike out all the evidence as to royalty paid and as to the division made of the purchase price of those plugs, as incompetent, irrelevant, and immaterial and not the best evidence, and also on the ground that any royalties paid by others outside of this district is not competent.

THE MASTER: The motion is denied.

MR. WESTALL: Exception.

(End of Plaintiff's Exhibit No. 1.)

O. G. MILLER,

called on behalf of the Plaintiff, sworn, testified as follows:

DIRECT EXAMINATION

BY MR. RICHMOND:

THE WITNESS: My name is O. G. Miller. I reside at Long Beach, California. I am a chartered accountant. I believe the first time I met Mr. Owen was in 1922, or 1923. The books of J. M. Owen or J. M. Owen and J. L. Bales were kept by other parties than myself. However, I made an audit over certain periods. The detail entries in those books were made by other parties. (13) I was called in after the entries had been made and made the audit at various times during the period. I made this audit or report, that has been filed by the defendant, around April 15, 1928. I think Mr. Bales made the original record entries.

Referring to Exhibit 7, the first entry is of January 26, 1923, York-Smullen Drilling Company. Referring

(Testimony of J. M. Owen.)

to the second item, Belridge Oil Company, of January 28, I do not know what kind of a plug was used in that job. I believe Mr. Bales was interested in the company at that time. To my knowledge I did not find in the records of Mr. Owen or Mr. Bales any books of J. M. Owen before J. L. Bales came into the business. I presume I would have known it. (14) I didn't handle any. (Witness withdrawn temporarily.)

J. M. OWEN,

the defendant, called and sworn for Plaintiff, testified:

DIRECT EXAMINATION

BY MR. RICHMOND:

THE WITNESS: I am one of the defendants in this case. Prior to January 28, 1923, I had not been in the business of cementing wells in California.

I am familiar with this Exhibit 7. There is a few wells in that list that the Wigle plug was used on when we first started. To my knowledge, all the Wigle plugs that we used in the cementing of oil wells during our operation are shown in that list as shown in Exhibit 7 to the report or statement that I have filed with the Master. (15) I know that our first well was cemented on the 26th day of January, and it is all there from there on, as far as I know. I did not engage in the business of cementing oil wells in California for myself before Mr. Bales became associated with me. I worked for Wigle before that time, but I had no business of my own whatever or wasn't interested in any business. I couldn't say how many of the wells that were cemented by plugs, as shown in Exhibit 7, we used the Wigle plug on as

(Testimony of O. G. Miller.)

distinguished from the Inskip plug, but there were around 40 of them used, of the Wigle plugs, before we bought the Inskip patent. We bought the Wigle plugs from Wigle; I suppose it was Wigle & McBride. (Witness withdrawn.)

O. G. MILLER

resumed the stand.

THE WITNESS: Referring to the last page of Exhibit 7, the total of plug cementing should be \$80,250 instead of \$8,005. The original shows \$80,250.

Referring to the next to the last page of Exhibit 7, in the last column, under date of May 16, 1924, a charge to Adolph Ramish, sale of plug, \$28.50, I don't know what kind of a plug that was. I couldn't tell what kind of a plug it was. According to the original sales tickets, no well was cemented for Adolph Ramish by Owen on or about that date. (17) I had the original records, all of them, in my possession; I assume that they were brought up to court, as far as I know. I turned to the account of Adolph Ramish.

Referring to the same page, to the entry of June 12th, Fremont Oil Corporation, there is no invoice here to cover that. Those cash sales entries were made directly into the cash book. Anything was considered as a cash sale, if I am not mistaken, outside of a regular oil well cementing job. Under date of June 12th I find the following items listed: Cementing, \$50. Chemical, \$15. Plug, \$22.80; making a total of \$87.80. (18) I presume the bills of the defendant company or partnership were billed the same as they were billed regularly. I

(Testimony of O. G. Miller.)

presume there were copies of the bills kept, but I haven't got those. I do not mean to tell you that my statement is made up and I never had recourse to the invoices or copies of invoices. There were a few plugs that were sold in the form of a cash sale, and some few chemicals, which they did not make bills for, as I understand it; at least I have never seen the bills for them. But very few. There is no daily report showing that \$50 charge for cementing. In making this report on file here, I checked against the accounts receivable, and I used the ledgers, cash books, check books, cancelled checks, accounts receivable and accounts payable. (19) By accounts receivable and accounts payable I mean accounts due the Owen Oil Well Cementing Company, at that time, and accounts that they owed at that time. They were evidenced by invoices, which are right here. There is no invoice covering that \$50 charge. The only record I have of that was taken from the cash book. I couldn't say what size plug that was. I couldn't tell you the size of any of them. The company kept no inventory showing the number of plugs that the defendant had on hand at any time, outside of going out and counting them. I don't think they had any records showing who manufactured (20) these plugs for them. If I am not mistaken, they were manufactured there in their own warehouse, but I don't know. I couldn't say positively as to that. I had practically all of the original records to make up a statement from. There were some few, as I stated a moment ago, cash sales, where cementing was not done, but any job that was cemented I believe you will find the original records for. I didn't find any for

(Testimony of O. G. Miller.)

that \$50 one to the Fremont Oil Company. I got that figure—or it was entered in the cash book as a charge against the Fremont Oil Corporation. There is an entry right here.

(21) I don't believe there is any way to determine how many plugs were manufactured by the defendants while they were in business. There is not to my knowledge. I could give you how many were used. There were 321 plugs used.

Referring to Exhibit 7, in the last column of the next to the last page, I did not add those plugs sold in there as plugs used. I have two different items. I have wells cemented with plugs, 321; plugs sold, 13. The record shows that on the 12th day of June there was for the Fremont Oil Company \$15 worth of chemicals sold, a cementing job of \$50, and a \$22.80 plug used. It is returned as a plug sold. I don't think if that one is added in it would give 322 wells and only 12 plugs sold. (22) I infer that a cementing job. The books show cementing, \$50, and it shows a separate plug sale of \$22.80. I have no reason to hook that cementing job up with the plug in that one particular instance. What tells me not to do it is that that is not the regular price of cementing an oil well. The regular price is \$250. Practically all of the charges are \$250. I can't say whether all of them are because I haven't counted them. Practically all of them were \$250; I can't say all of them were. To my knowledge there are no records showing the size of any plugs that were used or sold or manufactured, in the records of the company. (23) The books show from whom the defendants bought leather cups for the

(Testimony of O. G. Miller.)

manufacture of plugs. I don't see any of the invoices here. I had those invoices in making up the statement. I assume I have here all the documents and records, outside of the invoices, that I used in making the statement, and I was under the impression they were brought up. If they are not they are probably in my office yet. I am quite sure those invoices are not here. (24) It is just possible they are still in my office.

Referring to Exhibit 4, those items were turned in to me by Mr. Owen himself personally. I do not know what those three items are for. I marked them "Disbursed by J. M. Owen." I didn't see a cancelled check for this one particular exhibit; that is the reason I put it separate. I have no documents for the making up of Exhibit 4. That is the reason for making it separate. I don't know whether or not I so state any place in my report. Exhibit 4 is not disclosed by any of the books and records of the defendant. That is advanced by J. M. Owen personally. I see here below, "In addition to the above expenses, J. M. Owen (25) has advanced, as shown by Exhibit 4, for legal expenses, \$1858.31," and explaining Exhibit 4. I believe there are no other entries in this statement that there are no records of, from which this report is reflected. I believe that is the only one. And, as I stated before, that was personal advances.

Referring to page 1 of my report, on December 26, 1924, "Said Owen Oil Well Cementing Company sold their assets, as shown by escrow," and so forth and so on, "for \$13,922.56," I believe I saw a copy of that escrow in the bank and also one from Mr. Owen, which

(Testimony of J. M. Owen.)

he has in his possession. I will produce that at the next hearing. I cannot state at this time to whom the sale was made.

Thereupon

J. M. OWEN

was recalled and testified as follows, on further

DIRECT EXAMINATION

BY MR. RICHMOND:

THE WITNESS: I went into the business of cementing oil wells in California for myself first in 1923, about the first of the year. Prior to that time I had been working in the oil fields, cementing oil wells for Wigle, and driving a truck, and pushing tools, and general oil field work of all kinds. Just prior to going into the business of oil well cementing in the early part of 1923 for myself I was employed by Wigle and Cottengim. I think I left their employ in December, 1922, as I remember it. It was just before I went into business for myself. I don't remember the exact date or the month, but it wasn't long after I quit them until I went in business for myself. J. L. Bales, the other defendant, started when I did; both at the same time.

(27) For the first 40 wells we used the Wigle plug in cementing oil wells. After that we got hold of what we call the Inskeep plug. He had a patent on it, and we bought the California rights on it and using it. After the litigation with Wigle and Cottengim we figured that plug was an infringement, and if we could get hold of one that had a patent granted on it, why, we would, and

(Testimony of J. M. Owen.)

we gave Mr. Inskeep \$5000 bonus and paid him a royalty on that plug and went to using it. I couldn't say who manufactured the Wigle plug for us. We manufactured the Inskeep plug ourselves. As I remember the material from which we made these plugs, we bought the lumber from the Hammond Lumber Company of Long Beach, and we bought our dogs, cast iron dogs, from the Long Beach Foundry, and bought our rubber packing that we used on it from the West American Rubber Company of Los Angeles, and the leather cups that we used on some of them, not all of them—I don't remember who it was, but it was some leather company in Los Angeles where we bought those; but we didn't use them on half of the plugs. We always cut a piece of belt and nailed (28) it on top of most of them. We made the wood part, all the wood part, of the plug, and that is practically all the plug, in our own shop, and, as I say, the West American Rubber Company made the rubbers. We turned the wooden body of the plug in our own lathe. We had a man hired to put the dogs and the rubber packers and the belting or leather cups on them, and he had the material there. So all he had to do was just to make plugs.

I couldn't say how many plugs were manufactured by us of the Inskeep type. We made them just as we used them. We never had no stock on hand; probably 15 to 20 and 30 sometimes. We just made them as we used them. I guess we have on hand now half a dozen or more, maybe, or maybe a dozen. The last ones were made sometime before we quit using them. We haven't made any plugs since. (29) I couldn't say how many

(Testimony of J. M. Owen.)

plugs of all sizes we had on hand on March 3, 1924. We had no records of them. We never kept any records of any plugs that were made. We just made them as we used them. I have the makings, I guess, for a hundred of them now down there in my barn. We had these parts all made, but they were never assembled or put together, only as we used them. We used three to four dogs or slips on each one of these. We have no way to determine how many of those plugs we manufactured, only by the use of them. When we used them or sold them we had a record of it, but not before. We figured there wasn't any use of keeping a record of the number that we manufactured. They were all setting up there, all made, and the different sizes were there, and when we would get short on any size we would just make up that size. We kept a stock of them all the time. I can't say as to whether we have as many left now as we had when we were found in contempt for using them. (30) To my knowledge we have sold none of them since March, 1924, when we were found guilty of contempt by the Hon. William P. James. I don't know of my own knowledge that our records show that we sold plugs in May and June and July and August to oil companies; but I never kept the books. I did not necessarily make the sales of everything that was sold around there. There were several around there working.

Referring to the sale that was made on the 12th of June to the Fremont Oil Corporation, \$15 worth of chemicals and a cement job of \$50 and a plug for \$22.80, I don't remember about that job. As I remember that job, that was away out in the desert somewhere, and I can't

(Testimony of J. M. Owen.)

remember just what took place there. I don't know who did the cementing. It seems that that job was a job where I sent a man, one of my men, out. He took his Ford and went out without any equipment, and they did it some way with their own equipment on the rig. I suppose we furnished the plug, if it is there. But that is (31) where it has got me puzzled. We never made a charge for a plug like that. If we just sold it out, we never mentioned the plug in a cement job.

Q Well, the same day you charged \$50 for doing a cement job for the same company, and you charged \$15 for chemicals and \$22.80 for a plug.

A That must have gotten through there wrong in some way. It must have been for cement instead of a cementing job, or something like that, for I don't remember of ever doing such a cement job. There is times they would come in and buy plugs and chemicals and cement, and go out and do their own work, and it seems that is the kind of a job that is. But I don't remember.

Q All of these plugs that you sold, whether you did the cementing or not, you sold to be used in cementing oil wells, did you not?

A Well, I don't know as anything was ever mentioned about that. They would come in and want a plug, and we would sell them a plug. They might use it for a lot of things. They might use it on a water well or anything like that.

(37) On December 16, 1924, Mr. Bales and I sold the company or our assets to Mr. Egenhoff. As well as I remember, the Baker Casing Shoe Company paid for it, but the deal was made with Egenhoff. The Baker

(Testimony of J. L. Bales.)

Casing Shoe Company it seems gave us the check. I have the escrow papers that we can produce to show that, just how that went.

The plugs that we sold were not necessarily used in oil well cementing. (38) I think the schedules show *there* there are 13 plugs we sold where we did not do the cementing. There were very few of them, and I am sure that they were not used for cementing oil wells, because they had no equipment to cement them with.

(39) MR. WESTALL: I would ask the witness what the plugs were used for that were sold, that is, as to what other uses they could be put to. It is simply to rebut the presumption that because they were plugs they were necessarily used in the infringing process.

THE MASTER: I think you are anticipating. I will sustain the objection.

MR. WESTALL: Just note an exception.

(44) June 12, 1928. 10 A. M.

Testimony of

J. L. BALES,

called on behalf of Plaintiff, sworn, testified as follows:

DIRECT EXAMINATION

BY MR. RICHMOND:

THE WITNESS: My name is J. L. Bales. I am one of the defendants in this case. I conducted a business in partnership with J. M. Owen, known as the Owen Oil Well Cementing Company. We were in active business from January, 1923, until March, 1924; or I think

(Testimony of J. L. Bales.)

it was from January, 1923, but I would have to go back to the books to tell exactly how long we were active. (45) I think it was to March, 1924. We are still in existence, as far as that is concerned. We never have dissolved, but we are inactive. We were served with an injunction from the U. S. Court, and I quit and Mr. Owen went in business for himself. When I said we discontinued business, I meant that we discontinued the use of this plug. That is what I had reference to. We did a little business after that, but our outfits were small. We did some business after that with a no-plug system, but after this injunction we knew we couldn't use this plug any more. Our outfits didn't seem to be heavy enough to carry on the business without it.

Referring to Exhibit 7, the charge to the Fremont Oil Corporation of \$15 for sale of chemical, \$50 for cementing, and \$22.80 for plug, I think that is on the 12th of July. We had that up before. (46) The Fremont Oil Company were trying to dig a well up near Mojave, out on the desert, and if you go back through the records I think you will find quite a number of charges. Their driller was trying to cement it himself, and he had old casing, and I think there was a leak in this particular instance in his casing, and he was trying to locate a split in his pipe; and he bought this plug, I think, with the understanding to try to locate this leak, and he came to us and wanted to rent an outfit to go up there. We didn't rent him an outfit, but took a pump, rented him a pump, and he took the pump up there. That was the way that charge was made, to the best of my knowledge. There was a pump taken off of one of our outfits and

(Testimony of J. L. Bales.)

rented to him, and he did the work himself. It was east of Mojave, on the desert. They bought quite a bit of chemical from us. We had quite a bit of chemical on hand, and they bought quite a bit at different times. All the charges were the same date; I don't know when we got the money. (47) The gentleman came in himself and bought this stuff at our place of business. I think he made the order for all of those things at the same time. I am not positive, though, without going back to the work sheets of that day. I would have to go back to find out if he made the whole order at the same time or not. I noticed the bill is at the same time, or the same date. I don't remember whether or not we sent a cementer out there to do the work. We might have sent one out with a truck or a car with the pump. I would have to talk to Mr. Owen. I don't remember whether we did or not. If I look at the work sheet, maybe that will show. I don't think the work sheet would show that the plug was purchased for the purpose of locating a leak in the pipe. I tried to get on those work sheets all the information that would come up, so we could refer back to them.

MR. RICHMOND: Pardon me. Can you locate the work sheet for that?

MR. O. G. MILLER: No I couldn't locate the work sheets. I couldn't locate the work sheets on any of the cash sales. They were in my hands in December, 1924, but what has become of them since that time I don't know.

(48) Referring to the sale on May 6th of a plug to the Pan American Petroleum Company, that was just an

(Testimony of J. L. Bales.)

outright sale of a plug. I don't know what they used it for. You see, we had a contract with Mr. Inskeep to manufacture and sell plugs. We bought the patent and were to use the plugs, and had a right to manufacture and sell the Inskeep patent plug.

On the 29th of May, the sale of a plug to the Cooper Petroleum Company was just a sale. I have no independent memory or recollection of it. The same is true of the sale of the plug to the Pan American Petroleum Company, I have no independent recollection of it; (49) nothing only just as the records show there. I made the sale and sold the plug and billed them for it. I have no recollection what it was sold for or anything. You see, they came in and told us when they would buy those plugs that they wanted to use them to locate leaks and such as that. And you know how those things go; if they wanted a plug we sold it to them. I couldn't say that the Pan American Petroleum Company told us that on that special plug, but that is my version or my way of selling the plugs. I would ask them what they wanted with it. I asked them all, every one of them.

MR. WESTALL: If the Master please, we object to this line of questioning on the ground that the sale of plugs is not within the issues on this accounting. This is an accounting for the number of times that a certain patented method was used for cementing. The only thing that can constitute an infringement is the use of a method, and not the sale of plugs, obviously, from the reading of the claims.

THE WITNESS: (50) There were not 14 plugs sold after the injunction. We didn't sell but very few

(Testimony of J. L. Bales.)

plugs. The injunction was March 4, 1924. The item of \$3.80 is not a plug. There was no plug that cheap. The one listed here for \$3.80 to the Fremont Oil Corporation is just a little round piece of wood, part of a plug. We turned it on our lathe.

(51) THE MASTER: They admit in their account that they have offered in their schedules that they have sold those plugs, and probably the defendant would be willing to stipulate that they sold them to persons engaged in drilling oil wells. They appear, all of them, to have been sold to oil companies. How much further do you want to go?

MR. RICHMOND: Not very much further. I want to ask him (52) about each one of the items.

THE MASTER: All right, go ahead, and I will reserve the ruling on the objection.

THE WITNESS: Referring to the charge on May 20th to the California Drilling Company for the sale of a plug of \$28.50, I don't remember exactly the sale. If it is on there I made it. I made it in the office. I generally made a charge slip when the sale was made and had them sign it, or a work sheet. It was a slip. Then I took the slip and made my billing from that, from this work sheet. You will find an invoice in the files for that plug. You say the California Drilling Company? Here it is, May 20th, \$33.25, less the discounts. Those work sheets were in a box and I took them to Mr. Miller, the auditor. (53) I don't know as that worksheet would show what use they were put to, only it would show that the California Drilling Company had bought this plug and signed for it. Whoever took it away from the barn

(Testimony of J. L. Bales.)

signed for it. I don't remember who was in charge of the California Drilling Company at that time, and I don't remember who it was in the company that purchased that plug. You see, I wasn't in the field much, I did the office work, and I wasn't familiar with the outside work.

On March 23, 1924, there appears on Exhibit 7 an item of the sale of a plug, of \$28.50, to the California Drilling Company. I have no independent recollection of that bill. The California Drilling Company were engaged in the business of drilling oil wells. I am acquainted with the company; we did quite a bit of cementing for them.

On the 7th day of July there appears an item or charge of \$19 for the sale of a plug to the Bartholomew Oil Company. (54) I remember that we sold them a plug. We did one well for them on December 17, 1923.

Q On the same date there appears to be a sale to the Fremont Oil Corporation for chemical, \$12.50, and for a plug, \$19. Do you remember that sale?

A I have them charged with \$31.50, and \$6.30 on the 7th and 17th. The 17th is \$6.30. The 7th is \$31.50.

Q Of which \$12.50 was for the sale of chemical, was it not?

A Well, they bought quite a bit of chemical. The book just shows a charge here of \$31.50. It is not segregated on the ledger, \$12.50 for the sale of chemical and \$19 for the sale of a plug. Just the total is here. I would have to go back to the journal for that. (55) I don't remember anything about that sale. You see, they bought quite a bit of chemicals and cement and stuff.

On the 17th of July to the same company there appears on the same statement a charge of \$2.50 for chem-

(Testimony of J. L. Bales.)

ical and \$3.80 for a plug. Those charges are reflected in our ledger, a total \$6.30. There is no segregation showing what part of it is for a plug and what part of it for chemical; it wouldn't show in the ledger in that way.

Q This Fremont Oil Corporation, to which these last two charges, on the 7th and 17th of July, were made, is the same company to which the sale was made on the 12th day of June, of \$25 for chemical, \$50 for cementing, and \$22.80 for a plug, is that correct?

A The total in the book is \$87.80, in the ledger, and I don't remember if that included plugs, without going back to the journal or to the invoices and finding out what it is for. If it totals \$87.50 to the Fremont Oil Company, it is the same company. (56) That is the only Fremont Oil Company we had. All of these entries are against the same company. But to thresh them out I would have to go back through the journal and my invoices to get each item separate.

All of these corporations to whom we sold plugs were either contractors engaged in the business of drilling oil wells or wells and companies that were engaged in producing oil.

I have produced here documents that would show the number of plugs that were manufactured and sold by the defendant.

MR. WESTALL: Did I understand that the Master had reserved the ruling upon my objection, and is it understood that this objection heretofore made applies to all of this evidence.

(57) THE MASTER: I am reserving the ruling on it.

(Testimony of J. L. Bales.)

THE WITNESS: These are the records that were referred to the other day, showing the accounting made to the Inskeep people, showing the number of plugs we manufactured and sold. And in there is a complete record. It shows the number of plugs that were used for each month. I think it will show both the plugs that we sold and the plugs that we used in our own work. You see, we didn't get to making plugs for quite a bit after we bought the right. This shows them here. This shows the plugs manufactured. (58) This shows the plugs that we used and also the plugs that we sold. This is our own account that we rendered to the Inskeep people, in accounting to them for royalties.

THE MASTER: We can't tell until we go into it whether it is of any use as evidence or not; but I don't see that there can be any objection to allowing the plaintiff to examine Mr. Bales as to this account for the purpose of verifying items that are on the account that you have (59) offered here. The objection will be overruled.

MR. WESTALL: An exception.

THE MASTER: The question that has been raised, as to whether there is an accountability on the part of the defendant either as to profits or damages in the sale of plugs where there was no work done or no use of the process in question, is a question that probably will take more careful consideration than I can give it now; and if the reserving of the ruling on that particular point will not involve the taking of a large amount of testimony that is questionable, I would rather reserve the ruling and hear you fully on it, and determine it probably at the close of the hearing.

(Testimony of J. L. Bales.)

Q BY MR. RICHMOND: Mr. Bales, when did you first start the use of the Inskeep plug in the cementing of oil wells? And by "you" I mean you and the defendant Owen.

A I think that is the first report that I made to Mr. Inskeep, right there for June, 1923. If I am not mistaken, this is the report right here that I made on his royalty basis. This is the Wigle-McBride plugs that we bought. Prior to June, 1923, the firm of Owen Oil Well Cementing Company was using the Wigle and McBride or the Wigle plug. When we began to use the Inskeep plug we had quite a few of the Wigle plugs on hand, and Mr. Wigle agreed to take them back and give us credit. Now, I don't see any record—there should be a record of returned plugs. So that record there would not be complete of the number of plugs we returned. To the best of my memory we returned quite a bunch, excepting one. We had one big wooden plug that I think we have on hand yet. That is an invoice from Tom Merrill and Wigle & McBride for plugs that we had purchased. The statements I have presented here show the number of plugs that were purchased from Wigle or from other people who made the Wigle plug, but they don't show the number that we returned to Wigle out of these. I don't believe we have any account in our ledger or anything that would show how many plugs we returned to Wigle. It seems to be that the invoices or statements we have presented here, and which I have just handed you, are all the invoices that we received from Wigle & McBride and other people for the furnishing to us or our firm of Wigle plugs. I haven't gone through the records since I turned

(Testimony of J. L. Bales.)

them over to the auditor, though, but they seem to be all there. While we were using the Wigle plug I don't think we sold any Wigle plugs to any contractors or oil companies where we didn't do the cementing. I don't remember of any being sold. I think there must be a Tom Merrill plug on hand now.

Q Do these other reports from the Owen Oil Well Cementing Company, addressed to M. E. Inskeep, which I now show you, show all of the plugs, Inskeep plugs, that you had manufactured for you or manufactured for yourself and the companies for which these plugs were used, prior to the 4th day of March, 1924?

A Well, we have reports in here beyond that for June 10, 1924, and July 10, 1924. Those reports were made from invoices or from work sheets for plugs sold by us and manufactured by us. There is a little notation on the bottom there of four plugs used in one well, where they had a split pipe and they did the work themselves.

Q When did the Owen Oil Well Cementing Company commence to manufacture the Inskeep plug themselves and not buy it from someone else?

A I think it was along about the first report here, about June 1st, if I am not mistaken, that I began to make the reports. Mr. Inskeep was around our place quite often, and I might have just paid him without a report of this kind. But after we got to manufacturing the plugs, I made a report every month, and this seems to be the first report for June. Before we started manufacturing and selling them ourselves we did not have them made by somebody else, the Inskeep plug; we bought machines and made them ourselves. It took us quite a while.

(Testimony of J. L. Bales.)

It was a crude outfit and it took us quite a while to get it down perfect. We had to figure out a way to make them and get the little dogs manufactured, and castings. These reports of the Owen Oil Well Cementing Company to M. E. Inskip, dated July 1, 1923, until August 1, 1924, are copies of the reports rendered monthly to M. E. Inskip, showing the number of plugs manufactured and the number of plugs used, and by what companies they were used, and the location and number of the well; they show the number of plugs manufactured, sold and used, as near a complete report as I could get from my records. You see, we never counted these Inskip plugs as manufactured until they were completely set up. There must be a hundred or two unfinished, that are sawed out and ready, on hand now. I don't know. We never counted a plug on that report as manufactured until it was all nailed and bolted together, and we had a wagonload or more of unfinished material, all ready cut in shape. I really couldn't tell you whether or not we have manufactured any since the month of July, 1924, when we report that we manufactured one. I haven't seen the outfit in months. Mr. Owen has it stored in his barn, and I don't know. I haven't been in the barn in a year. But to my knowledge, or as far as my knowledge runs, we have not completed any since the date shown in this last statement. I really don't know how many of these plugs that we have are finished, that is, not parts but assembled, at the present time. I really don't know whether we have any or not. You see, Mr. Owen has them in his barn, and I haven't been in his place of business in a year.

(Testimony of O. G. Miller.)

(Reports relative to the Inskeep plugs received in evidence and designated as Plaintiff's Exhibit 2, subject to the general objection heretofore made by Mr. Westall.)

(Invoices of plugs bought from Wigle and Merrill marked and received in evidence as Plaintiff's Exhibit 3, subject to Mr. Westall's general objection as heretofore stated.)

Testimony of

O. G. MILLER,

recalled on behalf of Plaintiff, testified as follows on
durther

DIRECT EXAMINATION:

Referring to the last three pages of my Exhibit 7, the charges for the sale of plugs were made up by me from the cash book. I might add further that all cementing jobs that had plugs, or that were used with plugs, there is an invoice covering. However, on the plugs themselves there is no invoice there, no cash invoice, showing that. However, in 1924 I sent out an auditor's statement on all plugs for cementing jobs, regardless of whether they were paid or not, for a complete verification; and at that time the cash sales were in my possession and separate. But the last time that I came into the office they were not there. Where they are now I can't say, but the cash records themselves were taken from the cash book. The cash book is here, and I now produce it.

Referring to June 12th I find Fremont Oil Corporation, cementing \$50, chemical \$15, plug \$22.80, making a total

(Testimony of O. G. Miller.)

of \$87.80. I believe that is true of all these other cases where plugs were sold. I don't think there is an original invoice in there, to my knowledge; I don't remember of having one. This audit or statement prepared by me and filed by the defendant herein is a statement that is not made up from original records with the exception of the cash sales, and they were taken from the original records on the cash book.

I am acquainted with the system of bookkeeping as pursued by the defendants before I audited their books. The entries in the cash book are made direct from the checks, from the billing, from the invoices of purchases, and from cash receipts. The cash book as kept by the defendants is a book of original entry so far as books themselves are concerned. That is true of their ledger.

Q But the books were not made, or are not the original entries that were made, in the transactions or the carrying on of the business of the defendants?

THE MASTER: You are asking him to draw a conclusion. He states the cash sales were put down on slips and from those entered in that book. Isn't that correct?

A Correct.

THE MASTER: Then I can draw the conclusion as well as the witness can.

THE WITNESS: With the exceptions of the cash sales for plugs I did not have the original documents or charges from which to make up this audit. I am sure of that. The charge of Lyon & Lyon of seven or eight hundred dollars I did not get from the cash book. I said specifically in my audit that that was given to me by Mr. Owen since the company went out of existence. I have no

(Testimony of O. G. Miller.)

more exceptions I wish to make, unless so stated in the audit. Mr. Owen told me that that payment to Lyon & Lyon was for legal expense; he did not tell me what legal expense, only in connection with this suit. He might have told me it was for the costs in the trial of the suit. I can't recall that. That has been quite a while ago. I saw the cancelled check at home. I haven't that check here; that is in his records, and was taken from his records. There is nothing else that was taken from Mr. Owen's records unless it so states in the audit.

Since the last meeting I have checked the original invoices or work sheets for cementing done against the royalty report as rendered to Inskip. I did not do so before that. I checked against the original records. I checked the original invoices or work sheets for cementing done against the plugs that were bought from Wigle & McBride. I did that since the last hearing.

Referring to Plaintiff's Exhibits 2 and 3, the original invoices covering the Merrill plugs and Wigle & McBride plugs were entered in the accounts payable, and I have handled those previously. However, the Inskip reports were at one time handled by me, but not of late. In other words, in verification of the amounts as paid Inskip they were tendered to me, but not to check the plugs. Referring to Plaintiff's Exhibit 2, I saw those at the time they were first made up, in verifying Inskip's check, at the time that they were made up. That is the first time I had ever seen them, and that was right at the time. I think the next time I saw them before today was one day last week. So far as I know, those are all of the reports among the books and documents of the defendants, those that are produced here, and they check with my records.

(Testimony of J. M. Owen.)

Q And what about Plaintiff's Exhibit 3; are those all the invoices that are among the books and documents of the defendants for Wigle plugs?

A No; I believe there is a credit memorandum there covering some returns, if I am not mistaken. I wouldn't say it was all, but what there is here checks with my original records. There was possibly some returned, or they may have some on hand. As an illustration, on April 23, 1923, there is two 12½ Wigle cement plugs shown on an invoice here, that I don't see where they have been used on my original records. It is possible they have been returned. There is also a credit memorandum here covering the two 12½-inch cement plugs, two 8¼-inch plugs, and one 10-inch plug, the credit memorandum that was spoken of some time ago. In 1924 I had in my possession all of these original invoices or work sheets which are set out, from which the cash book was posted. I have no recollection as to what those work sheets showed on their face, as to what purpose the plugs that were sold were to be used for. They did not show for what purpose they were to be used, to my recollection.

June 13, 1928. 10 A. M.

Testimony of

J. M. OWEN,

recalled on behalf of Plaintiff, testified as follows on

DIRECT EXAMINATION:

Referring to the audit or statement furnished by the defendant, and to Exhibit 4, under "Disbursed by J. M. Owen, on February 26, 1928, Lyon & Lyon, \$708.31,"

(Testimony of J. M. Owen.)

that was costs in the suit, in the case or something, I don't know; I don't remember. It was some kind of costs though. I paid it in the office of Lyon & Lyon when I was present there with my attorney, Mr. Westall. That was for the costs as fixed by the District Court of Appeals in this suit, of which this is an accounting.

Testimony of

J. M. OWEN,

called as a witness in his own behalf, testified as follows on

DIRECT EXAMINATION

by Mr. Westall:

Q Mr. Owen, do you consider, assuming that the patent in suit, of course, is valid, which has been decided by the Court, and entitled to the scope that has been given to it, which, of course, we must assume, that \$50 a well was a reasonable royalty for the use of the Perkins process as described in Claim 2 of the Perkins patent?

A No, sir.

THE WITNESS: I have had about seven years experience in oil well cementing in California. In 1921 I worked for Wigle & McBride in cementing oil wells, in 1921 and 1922; and in 1923 Mr. Bales and I went in business. When I worked for Wigle & McBride I cemented oil wells practically the same as I am doing now and have done for myself. I expect I could come pretty close by saying that it would amount to a thousand jobs that I have actually had experience with in cementing. I have used what they call the plug method and no-plug method,

(Testimony of J. M. Owen.)

the dump bailer method and the tubing method. I believe that is all.

I am familiar with the prices that were charged for cementing oil wells during the time I have referred to. The price of cementing oil wells generally has been \$250. There was \$250 charged for all the methods of cementing, as far as I know; that included the no-plug method as well as the plug method. When I refer to the no-plug method I refer to a method in which the cement is pumped and placed behind the casing and through the casing without the use of plugs.

During the time I was in partnership with Mr. Bales, and particularly the time covered by this audit which is before me, I cemented wells by this no-plug method, and I received \$250 for cementing by the no-plug method as well as I did by the plug method.

I am familiar with the operations of other oil well cementers in the use of the no-plug process.

Q What other company operating in California here to your knowledge has used the no-plug method of cementing?

A Well, the Rotary Oil Well Cementing Company. They don't use any plugs. They use a no-plug system. And there is Castle & Bain down there don't use plugs.

Q Can you explain why some of these companies do not use plugs in oil well cementing?

MR. RICHMOND: That is objected to as calling for hearsay testimony.

THE MASTER: Overruled.

A Well, the biggest objection that I have ever heard to it is you have to take your head off to put that plug in.

(Testimony of J. M. Owen.)

After you break circulation and pump your cement in, you have to take that head off to put your plug in, and they don't like that on account of getting so much air in the casing, and they would rather take a chance on measuring the fluid on top of the cement and leaving the plug out. In using the no-plug method of cementing we determine when the cement has reached a proper place outside of the casing by measuring the casing and figuring up the amount of fluid you pump on top of the cement. We measure when we use the tubing method of cementing. I never heard of or never saw any wells cemented until I came to California in 1921, and since that time the measuring of fluid in to displace the cement in the casing has been used all the time, and I have been right with it all the time.

The problem in cementing is to determine when the cement has been forced out of the casing and up in the formation on the outside. The problem is to determine when the cement is all or practically all out of the casing. We endeavor in cementing to get practically all of the cement out. We drill through the plug. We try to leave about 20 feet inside of the pipe, and the rest of it all on the outside, up between the casing and the wall of the hole. The distance we cement up depends on the formation of the well and the amount of cement we use and the size of the hole. The ideal way to do it would be to leave about 20 feet. We want to get a seal here at the shoe at the bottom. The idea of leaving the 20 feet in there is that always the top of the cement is more or less mixed with water and is too thin, and it is sloppy like, and it doesn't set hard, and if you leave about 20, 30 or 40

(Testimony of J. M. Owen.)

and sometimes 50 or 60 feet in there, it assures you that there is good hard cement around the shoe. The contaminated cement would be in the top several feet in the casing. Then that is drilled out and we go on down through our plug.

In the use of the plug system a long spacer is occasionally used. They always have to put something in there. They used to use a 4 by 4 or something about 20 feet long, and they would throw in the pipe, and the bottom of that would hit the ground or hit the bottom of the hole, and then the plug would hit that, to assure you or to indicate that all of the cement wasn't pumped out, and in that case we would have cement the length of this spacer, maybe 20 feet long, in the bottom of the hole. That cement in the bottom of the casing is very valuable. If it was all pumped out you wouldn't get no job. That assures you that the cement is all around the bottom where you want it, if you have got some left inside, the same as when you don't use plugs; there is no difference.

Q Why do they use this long spacer so as to have say 20 feet of cement in the bottom of the casing when they use the plug system? Would not the plug prevent all of the cement from being pumped outside of the casing?

MR. RICHMOND: I object to that as calling for the conclusion of the witness; and furthermore it is leading and suggestive.

THE MASTER: The witness can state his opinion of the purpose of that. The question is a little bit leading, but I will let him answer it.

A If they didn't put something in there to stop the plug they would pump it right outside of the casing, and

(Testimony of J. M. Owen.)

you would just keep pumping, and also pump your cement out on top of the ground. If you have got circulation around it, there has to be something put in there to stop that plug, to keep it from getting out of the pipe.

As to the advisability of having cement in the bottom of the casing, I can't see any difference in the no-plug method and the plug method. If you don't use any plugs you have got to measure your fluid, and we have measuring tanks and equipment that it can be measured very accurately by. And even the Perkins outfit themselves measure the fluid on lots of jobs where they run their plug.

Q Why does the Perkins system, or anyone using the plug, find it advisable or necessary to measure in their fluid to displace the cement?

MR. RICHMOND: I object to that as leading and suggestive, immaterial and irrelevant.

THE MASTER: Overruled.

A Well, many times I have found it, when I was running the plug myself, that the plug didn't work. It didn't amount to anything as far as stopping your pump, and if you measure your fluid you know about where it is anyway, and you can quit before you pump all of your cement out of the pipe.

As to determining the amount of displacing fluid that goes into the casing, that is, measuring it, we have books with all of those decimals on them figured out, of all sizes of casing, and for tanks or anything you might want to use. It is very simple. As far as figuring what a string of casing would hold or a tank, it is very simple and any kid in the third grade could figure it with the decimals we

(Testimony of J. M. Owen.)

have for that purpose, with the tables that we have. They have had those tables for measuring the displacing of fluid in casings ever since I have been in the business, seven or eight years.

There are not any advantages in the use of the plug system over the no-plug system to which I have referred. I can't say that I have received any pecuniary value or profit or advantage by the use of the plug method over the no-plug method.

Q What do you consider would be a reasonable royalty, assuming that the Perkins patent, of course, is valid, as found by the Court, which must be assumed, and assuming the scope that has been given to it, for the use of the plug method of cementing as defined in the Perkins claim in suit?

MR. RICHMOND: I object to that on the ground that the witness has not been qualified to testify; furthermore, that the proper foundation has not been laid, and that it calls for a self-serving declaration.

THE MASTER: Overruled.

MR. RICHMOND: An exception.

A Well, I don't hardly know how to answer that question. I know I didn't make any money by the use of it while I was using it.

MR. RICHMOND: I move that the answer be stricken out as not responsive.

THE MASTER: That may be stricken.

THE WITNESS: I do not feel that I am qualified to give my opinion as to what a reasonable royalty would be in answer to the question as framed by Mr. Westall.

(Testimony of J. M. Owen.)

From the fact that I made no profit or advantage in the use of the plug process over the no-plug process, I would not consider that it would be just to pay any royalty to Perkins for the use of that process.

Q BY MR. WESTALL: Can you give any basis, from your knowledge and experience, for estimating any amount to be paid to Perkins as a reasonable royalty for the use of the Perkins process?

MR. RICHMOND: The same objection as first urged: the witness is not qualified, and, furthermore, the witness has upheld my objection that he is not qualified.

THE MASTER: The objection will be overruled.

A Well, I would think \$15 or \$20 a well would be thousands to pay if you paid any at all. The fact that the Perkins method has been advertised and is known, and by reason of its being talked a great deal, would have an influence upon me in figuring a minimum or figuring \$15 or \$20, and not the intrinsic value of the method over the no-plug method. I figure there is no value by using the plug only. It is just advertised and has been used a long time, and you have got to educate them to something else, which they are being done, or it is being done very fast now. There is a lot of wells being cemented, more every month, in the State of California, with no plugs. It is increasing every month. That is, with no barriers whatever to prevent the fluid from mixing with the cement. That use is increasing all the time. So that this royalty that I fix of \$15 or \$20 is only a concession to prejudice in some quarters in favor of the plug by reason of its advertising.

(Testimony of J. M. Owen.)

On

CROSS EXAMINATION

by Mr. Richmond the witness testified:

Q Mr. Owen, do you mean to testify that you are collecting \$250 for every well that you cement today by the no-plug process?

A I don't remember as to testifying about that as to every well that was cemented today, but all wells that Mr. Bales and I cemented were for \$250, as well as I remember. That was before the injunction where we were found guilty of contempt in this case. It is not a fact that today I am cementing wells for from \$100 to \$150 and \$200 per well with the no-plug system. I am getting the same price for cementing oil wells today as the Perkins Oil Well Company, and that is \$200 and \$250. Part of the wells I cement is \$200 and part of them \$250. Where I get \$250 it is for a very deep water string. Offhand I do not know of any wells that are being cemented by the use of a plug where the price is less than \$250. I don't know of any. Since this suit was brought I have not tried to get a license from the Perkins Oil Well Cementing Company.

Q You never consulted the Perkins Oil Well Cementing Company or any of their attorneys or representatives concerning the obtaining of a license under the Perkins patent?

A Well, I was in Lyon & Lyon's office once or twice in regard to the settling of that suit, which I was called in there by them in some way. I don't remember just how I come in there, but there was something said about settling that suit when I met Mr. Perkins and Mr. Whitney and all of them in there. And if I said anything about a

(Testimony of J. M. Owen.)

license to use the Perkins plug at that time, I don't remember it. I never had my attorneys, the firm of Burke, Camarillo & Herron, take the matter up for me regarding the obtaining of a license under the Perkins patent, that I have any recollection of at all. I don't remember that I ever did.

We give our bills two per cent discount for payment in cash or within thirty days. During the time that we were using a plug we charged \$250 on every well where we used a plug. Everybody was charging that price at that time, and since that time it has been cut, the price has been cut, and it looks like you can get a well cemented for anything without the plug. I understand the price with the plug has been cut too. I hear it has, but I don't know.

THE WITNESS: January 26, 1923, is the first well we cemented using a plug, and the last well we cemented using a plug was the Carl No. 2 of the Keefe-Resdin Oil Company, on March 6, 1924. We didn't cement, to my knowledge, any wells using a plug for less than \$250, or without the plug either. They were all the same price.

Q BY MR. RICHMOND: During the time, according to Exhibit 7, up until you were found guilty of contempt in March, 1924, you cemented 321 wells by the plug process, or the Perkins process, which has been held to be an infringement, and during the same time you cemented approximately 50 wells by the no-plug process; is that correct?

A I don't see but 43 on that report. According to the report we cemented 43 by the no-plug process. I don't know that there was any advantage during that time in

(Testimony of J. M. Owen.)

the use of the plug process, the Perkins patented process, over the no-plug process, but all the companies had just been using that, as far as I know, and they demanded that, and we wouldn't have gotten the cementing at that time if we hadn't used that plug. I wouldn't say there are any advantages in the use of the no-plug process at the present time that were not known on March 4, 1924, only they are just getting more educated to it at present is all.

Referring to Exhibit 7 of the report, the first page, the first item of January 26, 1923, is the York-Smullen Drilling Company, no-plug cementing, \$125. That is the first well we cemented. I think I gave him that job, or agreed to, and he gave me \$125. As well as I remember, that is the way that happened.

Q In any event you didn't get but \$125 for that job, did you?

A It don't show it here. I don't question the accuracy of the statement. We received only \$125 for that no-plug job.

Q Referring to the item in the same exhibit, of date September 9th, the Federal Drilling Company on Garner No. 1 well, there is another no-plug job and you only received \$100 for that, didn't you?

A That job was where we went over to Santa Fe Springs and where they had brought a big well in and was about to blow their casing out of the hole, and they had a leak around the top of the casing, and we went over there and pumped about 500 sacks of cement in there—

Q Don't say that. Look and see what it says there. It says that you used 56 sacks.

(Testimony of J. M. Owen.)

A Well, that is what the job was. There should be another one on that too.

Q. Then the statement is wrong, is it?

A. We put two jobs like that on that, to hold that casing in there, and pumped that cellar full of cement. The statement says we used 10 pounds of chemical and cemented 12½-inch pipe.

Q. Then on October 1, 1923, for the Federal Drilling Company, 175 sacks of cement, 40 pounds of chemical, 12½-inch casing, \$100. That is another no-plug cementing job you only charged \$100 for, isn't it?

A. Unless I could see the work sheet on that I would say they are not cement jobs. That is where we filled up casing there, or the sump hole, or I mean the conductor box, as well as I remember, for there were two or three jobs done on that well.

On the 13th of January, for Pugh-Miller Drilling Company, the Pantages No. 1, 25 sacks of cement and we used a dump bailer, we charged \$200 for that.

On March 2nd, John H. McNeece, No. 1, 25 sacks of cement, no-plug, cemented through drill pipe, and we charged \$200.

Q. Then when you told the Master that you charged \$250 for your no-plug jobs, the same as you did for the plug, during that time, you were not correct, were you?

A. Well, I don't call either one of these three here cement jobs. This here McNeece job on March 2, 1924, was a drill pipe job, and I gave a lot of this away, just pumping cement through a drill pipe to the bottom to cement off a fish or some tools they might lose in the hole. And those two here of the Federal Drilling Company was

(Testimony of J. M. Owen.)

just what they say on the face of them here; there was a leak around the collar of the casing, and they brought the well in, and it was just about to blow their casing out of the hole. So we did two jobs on that, and charged them \$100 apiece for that. During this period of time where we didn't use a plug, in most cases it was for repair jobs, and we couldn't use the casing or plug in putting the cement there. We were not furnishing at that time what is known or what I have been describing to the Master as the no-plug system; we were using the plug on all wells we could.

Q And when you did any cementing and didn't use a plug it was because you couldn't get a return or couldn't establish circulation; is that correct?

A No. That was correct about the cementing for the Federal Drilling Company. That was on top of the hole. There was no pipe there. It was just a big cellar 10 or 12 feet square, just a hole in the ground, and we were filling up around this casing.

Q Wasn't the same thing true of the McNeece job, where you pumped the cement through the drill pipe?

A We had circulation there. We used a tight head on top. They just cemented a fish or something. I don't see the work sheet on it, but I remember the job. They had lost some tools in there, or something, and we just pumped down some cement through the drill pipe and pulled out of it and left it there. It was not possible to use a plug in that drill pipe. It was not possible to put the cement in the bottom of the hole around that fish by the use of a plug through the casing.

I would not say that these no-plug jobs that we did from the time we started business up until March 4, 1924,

(Testimony of J. M. Owen.)

all of these no-plug jobs, were where we couldn't use a plug. You take most of those tubing jobs, the way I see it, and they generally always pull the tubing out of the hole where there would be no need of using a plug, and the plug wouldn't be of any advantage to you in that little pipe for you wouldn't leave it in there. You would pull it out. I do not know of anyone, since I have been cementing wells, that put in tubing in a well to cement it where they have free circulation and where a plug can be used. My testimony is on these wells that I cemented where I used no plugs they were either dump-bailer jobs or drill pipe jobs or tubing jobs. At the time between the time I started in January of 1923, up until the 4th day of March, 1924, I was not using at any time the no-plug system that I am using today. When I testified before the Master here that the Perkins patented process of cementing wells by the use of plugs or barriers had no advantage over that of the no-plug process, I was testifying from my experience gained since the 4th day of March, 1924.

Q You testified on direct examination that you were acquainted with the processes or methods known as the dump bailer and the tubing method. Has the Perkins patented process of cementing with plugs any advantage over those two methods, in your opinion?

A It is just according to what kind of a job you were going to do. You can't use a plug on one of those, and if you are going to cement a string of casing your plug is the best. It would be impossible to go out into the field of cementing today and use the dump-bailer method and the tubing method and compete with companies using the plug method of cementing. That being so, the Perkins

(Testimony of J. M. Owen.)

plug or cementing method is a great advantage over those two methods.

On

REDIRECT EXAMINATION

the witness testified:

I had a license under the Inskeep patent to use the Inskeep patented plug during all the time of the accounting period, and still have. In using the plugs that I mentioned in the audit, that I have referred to, and in all the jobs in which plugs were used, I used the Inskeep plug, with the exception of a few when we first started, before we got the Inskeep patent.

Q Was your selection of the use of a plug on any of these jobs caused by the fact that you had this license under the Inskeep patent?

MR. RICHMOND: I object to that as calling for the conclusion of the witness and a mere guess on his part.

THE MASTER: Overruled.

MR. RICHMOND: An exception.

A We had to use it for we had bought it and were paying royalty on it, and we had a contract. So that we had to use it wherever possible.

Q Were there any advantages in the use of this special Inskeep plug over the plug of the Perkins patent?

MR. RICHMOND: That is objected to as incompetent, irrelevant, and immaterial, and not responsive to any issues in this matter.

THE MASTER: Overruled.

MR. RICHMOND: An exception.

A Yes. I considered it a lot of advantage over the Perkins plug, because the Inskeep plug was a packer plug.

(Testimony of J. M. Owen.)

It had dogs on the side of it so that you could pump it down the pipe, and if you had any trouble or anything when you were pumping it down, the pressure being so great on the outside and it would stop your pump, that plug would hold the fluid and would not let the cement flow back into the casing. The dogs would permit it to go down and would wedge outwardly, and the plug would not rise in case the pressure was taken off of the top. And then when you pumped it to bottom, say for instance you used 300 sacks of cement and pumped that plug to bottom, the weight would be greater on the outside than it was on the inside, and that plug would hold the cement on the outside so it couldn't come back in, and you could take your circulating head off, and I could take it with me, which saved me thousands of dollars at the time.

Q Did it save any time in the cementing operation or in waiting for the cement to harden after the cementing operation?

MR. RICHMOND: If the Court please, may it be understood that my objection goes to all of this testimony?

THE MASTER: Yes; and the same ruling.

A. There was a good many of the operators I have talked to that thought so much of it that they said it saved them sometimes two days of time by taking that head off. You see, they have two or three days work around the rig getting ready to drill out the cement while the cement is setting, and by taking the head right off they would take and burn off the top of that casing down to the derrick floor and break down their drill pipe that they had in the rig, and make up the other string that will go inside of

(Testimony of J. M. Owen.)

the string of casing they set, and cement it, and they don't lose any time that way at all, and it is a great advantage.

Q In the use of the Perkins plug, please state what had to be done after the cement was pumped out of the casing.

MR. RICHMOND: I object to that as incompetent, irrelevant and immaterial. The witness has not testified that he knows what would happen or was familiar with the Perkins process or the plugs used by Perkins.

THE WITNESS: I am familiar with the Perkins process. I have seen a lot of wells cemented with the Perkins process.

THE MASTER: All right, he may answer.

A Well, they have got to leave their head on that pipe with their plug to keep that cement outside of the casing until it hardens. Otherwise it would flow right back into the pipe. That is where I had a good business with this plug. I was getting more and more, more than I could take care of, all the time. It was just on account of the plug, as the plug was so far ahead of the Perkins plug in all the operators' eyes that they wanted me to cement their wells. I would turn work away from the door. I didn't have money enough to get equipment to take care of the business I had with that plug, and it looks like it would be worse than that when the plug runs out to where I can use it.

Q You have heretofore stated that there wasn't any particular advantage in the use of the plug over the no-plug method of cementing. In so testifying were you referring to a special plug like the Inskeep plug or one like is shown in the Perkins patent in suit?

(Testimony of J. M. Owen.)

A I was referring to what I call a block of wood. That is all it is, the Perkins plug. It is no packer plug. Of course, I think with the packer plug I was using there is a lot of difference. As to why I didn't use the plugs on the tubing jobs that have been referred to in my cross-examination, the tubing was only used when they missed a cement job on their casing, and they didn't leave it in there, and they pumped a small amount, probably 10 or 15 sacks, through the tubing, and pulled the tubing up over it and put pressure on it, and you had no circulation around the casing, and it pushed the cement out in the formation around the casing. I could have used a plug on those jobs of cementing, but it would be no advantage. There was an advantage in using the tubing on those particular jobs; that is the only way you could cement it.

In making a comparison of the plug method with the tubing method, and in stating that the plug method had advantages over the tubing method, I did not consider those jobs in which it was necessary or advisable to use tubing; I was only making a comparison of the system generally in the large run of cases. The same is true of the dump bailer method.

Q You have spoken of one of the companies that was in the field cementing by the no-plug method during the accounting period which you have spoken of, when you were using the Inskeep plug. What company was that?

MR. RICHMOND: That is objected to as incompetent, irrelevant and immaterial.

THE MASTER: Overruled.

A That was the Hamer Oil Well Cementing Company. I don't know approximately how much business

(Testimony of J. M. Owen.)

the Hamer Oil Well Cementing Company did. They seemed to be very busy. They had three or four outfits. They were operating at Long Beach. With three outfits they could cement fifty or sixty wells a month. I couldn't say as to whether they were busy all the time. I know I saw them out in the field very often when I was out. I couldn't say how busy they were. They were not cementing special jobs, but were doing regular oil well cementing through the casing; they were doing all the cementing, all sized casings. They were cementing oil wells in which I would have used the Inskip plug if I had had the job, or Perkins would have used his plug on. According to my information they had good success.

MR. RICHMOND: I object to him testifying from information. I object to the whole line as irrelevant and immaterial.

THE MASTER: You had better develop the source of his information or his belief or what knowledge he has of it.

Q Do you have any knowledge as to the success or non-success of the Hamer Oil Well Cementing Company in the use of this no-plug method of cementing on wells on which you normally would have used a plug?

A Well, I know that they had several big companies that I would have liked to have had, and when I would go after their business they would say, "Well, we are satisfied with what we are getting and the success we are having, and we have no intention of changing." So that is all I know about it.

MR. RICHMOND: I object to that and move the answer be stricken as a conclusion, and not based on knowledge at all.

(Testimony of J. M. Owen.)

THE MASTER: The conclusion that the witness reaches there is probably not proper to stay in. That may go out.

THE WITNESS: I couldn't say just now what companies the Hamer Oil Well Cementing Company was doing work for, that is, the ones I referred to that I would have liked to have gotten, as it has been so long ago. They had one I know, which was the Parkford Oil Company at Santa Fe Springs, which was a good one, that I know I tried to get, and then they cemented some wells for the Wilshire Oil Company. At the time I approached those companies for their business as a competitor of the Hamer Oil Company I explained the advantages, as I saw them, of the use of the Inskeep plug. The Hamer Company continued in business as a competitor of ours during the entire accounting period that I was in business with Mr. Bales.

Q And continued all during this time to cement wells, to your knowledge, in which you would have used the Inskeep plug if you had been free to do so?

A Well, they have changed the name of that now. It is the Rotary Oil Well Cementing Company now, and has been for the last two years.

Yesterday I referred to the sale of plugs. Those companies bought those plugs mostly to find holes in casing. If they had a hole in their casing they could pump that plug down below this hole and it would stay there. As far as using them for cementing oil wells, I don't think they could do it, because they have no equipment to do with, and I know if they were to come there to buy a plug to cement a well they would not get it. In one instance

(Testimony of J. M. Owen.)

I know we sold a plug to a company up there, and come to find out the Perkins Oil Well Cementing Company put it in evidence up here in the Federal Court. That is the way they would get away, because we would have no right to know where the plugs went if they bought them. I know in one instance for Sheridan Bales of the Signal Syndicate Oil Company we used four of them on his one well in finding a hole in the casing. In most cases, when they have a hole in their casing, they generally have got circulation around it, and they put that plug in there and pump it down to the hole. And, you see, the plug will go down to a hole in the casing and then won't go any farther; and then you run in with your sand line or something and measure to see where that plug is, and then you pull your sand line back out of there and put your pump on it and pump fluid in again, and then go back with your sand line, and if the plug has not moved you know you have found your hole. So that the use of the plug was only to locate the hole in the casing. The companies to whom we sold those plugs were not in the oil well cementing business.

On

RECROSS EXAMINATION

the witness testified:

When we sold a plug and chemical to an oil company we did not necessarily expect them to use the plug and chemical in the cementing of an oil well. At times there was lots of things they could use that plug for, and use the chemical and cement. They could find a hole in their casing and take a dump-bailer and cement and chemical and cement it up.

(Testimony of J. M. Owen.)

Q And when you charged them \$50 too for cementing on the same day, I suppose that you were not cementing an oil well with that plug, were you?

A I don't know nothing about that job that you are referring to.

Q How much money have you spent in order to get the right to use this plug, in litigation in this suit before the Master?

MR. WESTALL: We object to the question on the ground it is indefinite, and it is incompetent, irrelevant, and immaterial and not an issue before the Court.

THE MASTER: I think the question is improper. The objection will be sustained.

Q Referring to the third page of your report or audit, which is on file here, I notice, under the heading of Profit and Loss, December 21, 1922, to April 15, 1927, there are two items: "Legal Expenses, Westall & Wallace, \$2442.80," and "Legal Expenses, Mortgage, Westall & Wallace, \$2617.68." What were those legal expenses for?

MR. WESTALL: We object to that as irrelevant and immaterial to any issue before the court.

THE MASTER: I think it is very evident you are going into it to show that he spent considerable money in defending the case, and from the state of the record and all that, it is very evident he has spent considerable money. But as to going into why he spent that money, I don't think it is proper.

MR. RICHMOND: Then I will take an exception and let the matter rest.

Q Did you state that the Hamer Oil Well Cementing Company had three outfits cementing wells in California

(Testimony of L. J. Whitney.)

or elsewhere during the period from January, 1923, to the 4th day of March, 1924?

A Well, somewhere along about the first of the year 1923 they bought that Wigle and Cottengim outfit, and they had three, because I had been cementing with them myself. They bought those outfits. I wasn't associating with them all the time or around them, so I don't know how many they had. Afterwards they might have had more. I couldn't say that they didn't have less. I know they bought them. I don't know that they had three all that time; I couldn't say to that.

Testimony of

L. J. WHITNEY,

called for Defendant, sworn, testified as follows on

DIRECT EXAMINATION

by Mr. Westall:

I know the amounts received by the Perkins Oil Well Cementing Company for cementing oil wells during this accounting period, that is, during the period Owen and Bales were in partnership. The amount received per well was \$250 for a cementing job. I have charge of the auditing department of the Perkins Oil Well Cementing Company. I am familiar with the different jobs as they come along, but I don't remember all of them as to the amount of money that has been received for the different oil well cementing jobs. I couldn't say without an examination of the records for the particular period inquired about whether there have been some jobs for which the Perkins Oil Well Cementing Company did not receive

(Testimony of L. J. Whitney.)

\$250 per well. During the period from January, 1923, to March 4, 1924, there were no jobs under \$250, to the very best of my recollection. But I couldn't say absolutely that, because I don't remember. Tubing jobs until comparatively recently we charged \$250 for, the same as the other. During that time we cemented wells for the Shell Company, during the accounting period.

Q And will you say that you have always received \$250 from the Shell Company for all wells cemented for them?

MR. RICHMOND: I object to that. Unless counsel will ask it as an impeaching question and has the intent of following it up and proving that anything else is different, I object to it. If it is just a fishing expedition I object to it. It is not relevant and it is not material.

THE MASTER: Overruled.

MR. RICHMOND: An exception.

A I feel quite certain of it during that period, that is, the period covering this accounting, January, 1923, until March 4, 1924. The first item on here is January 28.

During that period just referred to, January 28, 1923, to March 4, 1924, the Perkins Oil Well Cementing Company cemented wells for the Standard Oil Company.

MR. RICHMOND: The same objection, if your Honor please.

THE MASTER: Overruled.

MR. RICHMOND: And the further objection that it is in the nature of cross-examination, and this witness is not a party, and he has no right to call the witness and cross-examine his own witness.

THE MASTER: I don't think you are examining an adverse witness, I don't see that the question, though, is

(Testimony of L. J. Whitney.)

improper. I will allow you to go ahead with that line of examination.

MR. RICHMOND: An exception. And will my objection and exception go to all this line of testimony, to save repeating it?

THE MASTER: Yes.

THE WITNESS: The Perkins Oil Well Cementing Company received \$250 per well for such cementing for the Standard Oil Company during the period mentioned, in all cases. I am sure about that as near as I can cover the period. We did very few tubing jobs for the Standard Oil Company during that time. Well, I don't think we did any tubing job for the Standard Oil Company during that period.

We did cementing for the General Petroleum Company during the period mentioned, January 28, 1923, to March 4, 1924. We received \$250 for every well cemented for the General Petroleum Company during that period; that was our regular price.

Q You had no special contract with any of the companies whereby they were to receive any less price?

A No, sir.

MR. RICHMOND: I object to that as not proper examination. It is cross-examination of his own witness, and I ask that it be stricken.

THE MASTER: Overruled. Denied.

MR. RICHMOND: An exception.

THE WITNESS: During the accounting period just above referred to we did cementing for the Pan American Company, and charged them the same price, \$250. We did not allow any discounts at all to the Shell Company,

(Testimony of L. J. Whitney.)

the Standard Oil Company, the General Petroleum Company or the Pan American Company during that period.

(Testimony closed.)

STIPULATION

STIPULATED that the foregoing Statement of Evidence, consisting of pages 1 to 166 inclusive, having been heretofore lodged and filed in the Clerk's Office February 27, 1929, and withdrawn under stipulation and order of court of March 19, 1929 for the purpose of making corrections agreed upon by the parties, having now been corrected in accordance with such stipulation, may now be filed as a true and correct Statement of the Evidence, as part of the record on appeal in said cause, subject to correction if any errors should later be found therein.

Dated this 22nd day of April, 1929.

Frederick S. Lyon

Leonard S. Lyon

Henry S. Richmond

Attorneys for Plaintiff-Appellee.

WESTALL AND WALLACE,

By Joseph F. Westall

Attorneys for Defendant-Appellant.

[Endorsed]: Statement of Evidence Under Rule 75 on Appeal from Final Decree, Being Evidence Before Master on Accounting. Lodged Feb. 27, 1929. R. S. Zimmerman, Clerk, by M. L. Gaines, Deputy Clerk.

Filed Jun. 26, 1929. R. S. Zimmerman, Clerk, by Edmund L. Smith, Deputy Clerk.

[TITLE OF COURT AND CAUSE.]

STIPULATION FOR WITHDRAWAL OF STATEMENTS OF EVIDENCE TO MAKE CERTAIN AGREED CHANGES AND CORRECTIONS.

STIPULATED that the Statement of Evidence (two volumes) on appeal from the Interlocutory Decree entered in the above entitled cause on the 23rd day of January, 1928, which statement was lodged and filed in the Clerk's Office of this court on the 14th day of March, 1928, also the Statement of Evidence (one volume) on appeal from the Final Decree entered on the 17th day of January, 1929, which statement was lodged in said Clerk's Office on the 27th day of February, 1929, may each be withdrawn by the attorneys for defendant appellant, or either of them, Ernest L. Wallace and Joseph F. Westall, for the purpose of making changes and corrections agreed upon by the parties hereto, it being the intent after making such changes and corrections that such Statements of Evidence may be refiled with the Clerk of this court as part of the record from which the transcript on the appeals heretofore taken from Interlocutory and Final Decrees shall be made up.

Dated this 19th day of March, 1929.

Frederick S. Lyon

Leonard S. Lyon

Henry S. Richmond

Attorneys for Plaintiff.

Westall and Wallace

By Joseph F. Westall

Attorneys for Defendant.

The foregoing Stipulation is approved, and it is so Ordered.

Paul J. McCormick
District Judge.

Apr 1, 1929

Received Vols 1 & 2 of Statement Lodged Mch 14/29
also Statement Lodged Feb 27/29 for purpose mentioned
in foregoing stipulation

Joseph F. Westall
Atty for deft.

[Endorsed]: Filed Apr 1 1929 R. S. Zimmerman,
Clerk, By M. L. Gaines, Deputy Clerk.

[TITLE OF COURT AND CAUSE.]

ORDER FOR ACCOUNTING.

TO THE DEFENDANTS ABOVE NAMED AND TO
WESTALL AND WALLACE AND JOSEPH F.
WESTALL, their attorneys:

Pursuant to Interlocutory Decree in the above entitled
suit, and in furtherance of the reference therein made, and
for the purpose of taking and stating an account of the
profits and gains which the defendants have derived by
reason of the infringement adjudged in said Decree, and
for the purpose of assessing any and all damages which
plaintiff has sustained by reason of said infringement:

YOU, SAID J. M. OWEN and J. L. BALES, ARE
HEREBY ORDERED AND DIRECTED to appear
before me at the hour of 10:00 o'clock A. M. on the 24
day of April, 1928, at my office in the Post Office Build-
ing, Los Angeles, California, and bring with you and

render an account or statement in writing, under oath, of the profits and gains which you have derived or received by reason of the aforesaid infringement and that you set forth in detail the following:

1. The number of wells you have cemented using the infringing method referred to in paragraph 4 of said Interlocutory Decree.

2. The date on which each of said wells was cemented, the name and location of each well, the name of the party employing you to do such work, the name of the owner of the well, and the amount received by you for each of said jobs, particularly for the use of the method referred to in said paragraph.

3. The total cost to you of performing said infringing operation, giving in detail the character and amount of each item included therein.

AND IT IS FURTHER ORDERED that you have with you at said time all the books, papers, documents, statements, records, vouchers, and other things pertaining to such infringement and the amounts received or expended therein by you.

This order is directed to you, your employees, agents, representatives, associates, workmen, and attorneys, each of them as they may stand with you in relation to the premises; all in accordance with said Interlocutory Decree, and the power therein and thereby conferred upon me, and in accordance with Rules 60, 62 and 64, and the rules practiced in the Courts of Equity of the United States, and the Statutes of the United States, made and provided.

Dated at Los Angeles, California, this 24 day of March, 1928.

David B. Head
Master pro haec vice

[Endorsed]: Due Service and receipt of a Copy of the within Order is hereby admitted this 24th day of Mch, 1928 Westall & Wallace Atty. for Defts Filed Mar. 30, 1928. R. S. Zimmerman Clerk, by L. J. Cordes, Deputy Clerk

[TITLE OF COURT AND CAUSE.]

REPORT OF SPECIAL MASTER.

TO THE HONORABLE JUDGES OF THE UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF CALIFORNIA:

The undersigned, David B. Head, appointed Special Master pro haec vice, by an order of this court entered January 23, 1928, directing him to take and state an account of profits and gains and to assess damages in the above entitled cause, and to report thereon, herewith submits his report:

Pursuant to said order, the master on April 24, 1928, took his oath and ordered the defendants to file accounts under Equity Rule No. 63. The said accounts being filed, the cause was adjourned until May 29, 1928, and from time to time until June 13, 1928, at which time both parties rested. At all times there appeared for the plaintiff Henry S. Richmond, Esq., and for the defendants Joseph F. Westall, Esq. Subsequently both counsel have filed briefs of their points and authorities.

THE TESTIMONY: The testimony was taken down in shorthand by Ross Reynolds, the official reporter of this court, and transcribed by him, which transcript is filed with the papers in this case. By stipulation the testimony of Paul Paine, L. J. Whitney, A. A. Perkins, and W. C. McDuffie, given before the Honorable S. S. Montgomery, Special Master on accounting in the case of Perkins vs. Wigle et al, No. F-70, was incorporated in the evidence in this case (reporter's transcript, pages 5 to 8).

THEORY OF ACCOUNTING: The plaintiff asks damages based upon a reasonable royalty and lost sales. No evidence has been offered that brings this case within the scope of the rule laid down by the Supreme Court in Yale Lock Manufacturing Company vs. Sargent (117 U. S. 536) on the theory of list sales. The defendants contend that on any theory the damages to be assessed are nominal, in that they gained no advantage in the use of the Perkins process from the process described as the "no plug" process. Granting *arguendo* that the "no plug" process was available for use during the time of the accounting period, this contention is not consistent with their previous representations in affidavits filed and evidence given before the court in this action. Their previous contentions tend to support plaintiff's theory that the success of their business depended, to a large extent, upon the use of a plug in their work in cementing oil wells. An examination of the opinions and decrees of this court in this action lead to the conclusion that all the cementing work done by the defendants wherein the plug was employed infringed the patent in suit. There is no evidence

tending to show that plugs sold by the defendants were used in the commission of infringed acts.

The master finds that it is most equitable to assess damages based on a reasonable royalty.

AMOUNT OF ROYALTY: In the case of Perkins vs. Wigle et al, No. F-70, referred to above, the Honorable C. C. Montgomery, sitting as Master in Chancery on accounting, found a reasonable royalty for the use of the process of the patent here in question to be in the sum of Fifty Dollars (\$50.00) per well. The master herein finds that this sum is not excessive in view of the evidence before Mr. Montgomery. The greater part of the evidence offered in the case of Perkins vs. Wigle et al, bearing on the question of reasonable royalty, has been incorporated in this case and no additional evidence offered in the instant case casts any doubt upon the reasonableness of that determination.

Wherefore, the master finds:

I. That from January 26, 1923, to March 6, 1924, the defendants, J. M. Owen and J. L. Bales, were a co-partnership doing business under the name of the Owen Oil Well Cementing Company.

II. That the said co-partnership, between the said dates of January 26, 1923, and March 6, 1924, cemented three hundred and twenty-five (325) wells, using a process which infringed the Letters Patent in suit herein.

III. That a reasonable royalty for the use of the said process during the period above mentioned was in the amount of Fifty Dollars (\$50.00) for each well cemented.

IV. That the defendants, J. M. Owen and J. L. Bales, are jointly and severally indebted to the plaintiff in the

sum of Sixteen Thousand Two Hundred and Fifty Dollars (\$16,250.00).

RECOMMENDATION: That judgment be entered for the plaintiff in the sum of Sixteen Thousand Two Hundred and Fifty Dollars (\$16,250.00), and plaintiff recover its costs.

Respectfully submitted,

David B. Head
MASTER PRO HAEC VICE.

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF CALIFORNIA, SOUTHERN DIVISION.

PERKINS OIL WELL CEMENTING)	
COMPANY,)	
)	Plaintiff,
)	
)	-vs-
)	
J. M. OWEN and J. L. BALES,)	In Equity.
)	No. G-114-T
)	
)	Defendants.

SUPPLEMENT TO REPORT OF SPECIAL MASTER.

The foregoing report was submitted to counsel for submission to the master of their exceptions.

Defendants have filed exceptions, which are herewith returned to the court with the file in this case.

All exceptions are denied.

Respectfully submitted,

David B. Head
MASTER PRO HAEC VICE.

[Endorsed]: Filed Dec. 20-1928 Dec 20 1928 R. S. Zimmerman, Clerk; by Edmund L. Smith, Deputy Clerk.

Perkins etc vs Owen

U. S. Dist. Court

So. Dist. of Cal. So. Div.

Defendants Schedules of Account—

Filed April 24, 1928

D B Head

Special Master.

A U D I T

CASH REVENUES AND DISBURSEMENTS
OWEN OIL WELL CEMENTING COMPANY
Co-Partnership

J. M. Owens and J. L. Bales

December 31st, 1922, to April 15th, 1927.

O. G. Miller, F. C. A.

Chartered Accountant

Long Beach, California

April 18th, 1928.

Owen Oil Well Cementing Co.

Long Beach, California

Gentlemen:—

As per your request, I am handing you herewith detailed audit of the books of the Company from December 21st, 1922, to April 15th, 1927, said audit being compiled from cash receipts and cash disbursements.

Exhibit 1—shows in detail all wells cemented from January 26th, 1923, to April 15th, 1927, together with the sale of chemicals, sale of cement, sale of plugs and cementing job where no plug was used. Said gross sales amount to \$117,082.20, less discounts allowed on collections, less bad debts uncollectable, leaving a total collected on cash revenues of \$109,201.80.

The cash revenues deposited in the First National Bank, as shown by Exhibit 5, amount to \$110,303.51, deposits in Union State Bank \$400.00, making a total of \$110,703.51, less transfer from the Union State Bank to First National Bank of \$1.71 and a deposit from the sale of Capital Assets of \$1500.00, which leaves \$109,201.80.

Cash Revenues derived from interest on bank account, as shown by Exhibit 5, amounts to \$71.50, making total gross revenues \$109,273.30.

The following expense items appearing are as follows:

Paid for legal services—Exhibit 6.		12,602.02
Paid for Truck Exp.		
Gas & Oil	“ 6.	2,912.66
Paid for Miscl. Expense	“ 6.	4,659.02
Paid for Miscl. Labor	“ 6.	13,723.81
Paid for Supplies	“ 6.	19,930.06
Withdrawals: J M Owen Exh. 6.	11,017.98	
Less Cash Adv. “ 5.	90.00	
Net Withdrawals by Owen		10,927.98
Withdrawals:		
J L Bales Exh. 6.	11,185.27	
Less Cash Adv. “ 5.	257.30	
Net Withdrawals J. L. Bales		10,927.97

making a total of cash disbursed of \$75,683.52, or a gross trading profit \$33,589.78.

On December 26, 1924, said Owen Oil Well Cementing Co. sold their assets, as shown by Escrow #12848 C, dated Dec. 26th, 1924, for \$13,922.56, which was disbursed, as follows:

Owen Oil Well Cementing Co.

Long Beach, Calif.

Sheet #2.

Legal Expense Westall & Wallace		2442.80
Mortgage Paid to “ “ “ for legal exp.		2617 68
Interest Paid		26 18
Escrow Fee		6 50
Recording Expense		1 00
Account		1500 00
Withdrawals: J M Owen		3664 20
J L Bales		3664 20

The above escrow covered in detail by Exhibit 2.

The amount paid for the equipment sold, as shown by Exhibit 6, amounts to \$29,615.02. The amount paid for patents on said plug, as shown by Exhibit 6, amounts to \$5000.00, which leaves a total cost of \$47,037.58, leaving a loss on the sale of Capital Assets of \$33,115.02.

The Expense paid through the Union State Bank, as shown by Exhibit 3, is as follows :

Paid for taxes W O Welch	335 79
Paid for Com Exp. H C Thompson	62 50
making a total cash expense through the Union	<u> </u>
State Bank of	398.29

This leaves a net cash profit of \$76.47, which is on deposit in the First National Bank and is detailed by Exhibit 5, showing the deposit of \$113,722.31, less disbursements, Exhibit 6, amounting to \$113,645.84, which leaves cash on hand, which has been verified in the First National Bank, \$76.47.

In addition to the above expense, J. M. Owen has advanced as shown by Exhibit 4, for legal expenses \$1858.31, leaving a net loss of \$1781.84.

The withdrawals by J M Owen, as shown by Exhibit 6, less amount advanced Exhibit 5, amounts to \$10,927.98. Withdrawals as shown by Exhibit 2, \$3664.20, or total withdrawals of \$14,592.18. Withdrawals of J L Bales, as shown by Exhibit 6, less amount advanced, as shown by Exhibit 5, amounts to \$10,927.97, withdrawal as shown by Exhibit 2, \$3664.20, making a total withdrawal by J L Bales of \$14,592.17.

A complete analysis of the above is attached hereto and I hereby certify that the above is a true and correct analysis of the attached schedules. Said schedules being derived from actual cash revenues and disbursements covered by vouchers and checks.

Respectfully Submitted,

O G Miller F. C. A. F. C. A.

Chartered Accountant

OGM:A

Profit & Loss
December 21st, 1922 to April 15th, 1927.

Revenues			
Cash Revenues Derived	Exhibit 1		109201 80
“ Interest	“ 5		71 50
			<hr/> 109273 30
Expense			
Paid for Legal Services	Exh. 6.	12602 02	
“ “ Truck Exp. Gas & Oil	“ 6.	2912 66	
“ “ Misl. Expense	“ 6.	4659 02	
“ “ Labor	“ 6.	13723 81	
“ “ Supplies	“ 6.	19930 06	
“ “ Labor J M Owens	“ 6.	11017 98	
Less Cash Advanced	“ 5.	90 00	
		<hr/> 10927 98	
Paid for Labor J L Bales	“ 6.	11185 27	
Less Cash Advanced	“ 5.	257 30	
		<hr/> 10927 97	
			<hr/> 75683 52

33589 78

13922 56

Gross Trading Profit	
Sale Capital Assets	
Sale Assets	2442 80
Legal Expense Westall & Wallace	2617 68
" Mtg "	26 18
Interest Paid	6 50
Escrow Fee	1 00
Recording Fee	29615 02
Paid for Equipment	5000 00
Paid for Patents	3664 20
Paid Labor J M Owens	3664 20
" J L Bales	
	47037 58

33115 02

474 76

47037 58

Gross Loss Sale Capital Assets	
Expense	
Paid for Taxes W O Welch	335 79
" Expense H C Thompson	62 50
	398 29

398 29

76 47

Expense J M Owens
 Legal Expense Exh. 4.

1858 31

Net Loss

1781 84
 Exhibit 1.

Analysis
 Gross Revenues
 Vs
 Cash Revenues

Gross Revenues

Receipts Cementing with Plug 321 Wells Exh. 7 80250 00
 " " without " 82 " 7. 16964 25
 " Chemical Sold " 7. 18669 95
 " Cement Sold " 7. 850 00
 " Plugs Sold " 7. 348 00

Gross Revenues all sources " 7. 117082 20
 Deductions from Gross Revenues.

Discounts allowed on collections 2650 50
 Bad Debts uncollectable 5229 90

7880 40

109201 80

Cash Revenues
 Deposit from Collections on Sales First Nat'l Exh. 5.
 " " " Union Nat'l " 3.

110303 51
 400 00

 110703 51

Less Transfer Union State to First National " 3.
 " Revenues Sale Capital Assets " 2.

1 71
 1500 00

1501 71

109201 80

Exhibit 2.

Sale of Capital Assets
 Escrow No. 12848 C
 First National Bank
 Dated December 26, 1924.

13922 56

Receipts
 J M Owen 3664 20
 J L Bales 3664 20
 Westall & Wallace 2442 80
 Escrow Fee 6 50
 Mortgage Recording 1 00
 Account 1500 00
 Interest 26 18
 Mortgage Paid off Westall & Wallace 2617 68

13922 56

Exhibit 3.

Receipts		
Disbursements		
Union State Bank		
12/2-24 to 4/15-28		
12/2-24	Sales Collections	400 00
12/1-24	W O Welch Taxes	335 79
12/4-24	H C Thompson Exp.	62 50
1/8-25	First National Bank Sales	1 71
		<hr/> 400 00

Exhibit 4.

Disbursed by J M Owen		
2/ 6-28	Lyon & Lyon	708 31
2/16-28	Bond for Appeal	250 00
2/27-28	Westall & Wallace	900 00
		<hr/> 1858 31
	Legal Expense paid by Owen	

Cash Revenues
Owen Oil Well Cementing Co.
December 21st, 1922 to April 15th, 1928.
Exhibit 5.

	Deposits	Notes Payable	Collection	J L Bales	J M Owen
	Bank	J L Bales	from Sales		
12/21	Loan J L Bales	1 000 00			
12/28	Loan J L Bales	500 00			
1/6/23	Loan J L Bales	500 00			
1/17	Loan J L Bales	1 000 00			
1/20	Collection		100 00		
2/15	Collection	11 00	11 00		
2/23	Collection	150 00	150 00		
3/2	Collection	1 151 50	1 151 50		
3/5		743 15	743 15		
3/8		570 00	570 00		
3/13		644 10	644 10		
3/16		487 50	487 50		
3/19		8 75	8 75		
4/6		87 50	87 50		
11	Loan Owens & Bales	347 30		257 30	90 00
12	Collections	812 50	812 50		
16		608 00	608 00		
18		237 50	237 50		

21	250 00	250 00
25	874 00	874 00
5/2	304 00	304 00
12	304 00	304 00
17	320 00	320 00
21	313 60	313 60
6/2	250 00	250 00
2	75 00	75 00
6	313 60	313 60
7	105 00	105 00
11	150 00	150 00
13	793 80	793 80
15	622 30	622 30
18	100 00	100 00
19	250 00	250 00
21	570 00	570 00
23	803 60	803 60
27	500 00	500 00
7/5	250 00	250 00
10	100 00	100 00
10	1 328 80	1 328 80
11	315 00	315 00
12	250 00	250 00
16	245 00	245 00

Exhibit 5.

	Deposits	Notes Payable	Collection	J L Bales	J M Owens
	Bank	J L Bales	from Sales		
19	28 50		548 80		
20	269 50		490 00		
21	1 031 20		1176 60		
23	250 00		610 00		
8/4	245 00		652 80		
-7	1 198 50		311 90		
9	410 00		750 00		
11	340 00		6 25		
13	560 00		300 00		
			800 00		
			583 20		
			250 00		
14	548 80				
15	490 00				
16	1 176 60				
17	610 00				
21	652 80				
24	311 90				
27	750 00				
29	6 25				
30	300 00				
9/1	800 00				
-4	583 20				
6	250 00				

7	352 80	352 80
11	583 20	583 20
12	303 80	303 80
12	275 00	275 00
14	310 00	310 00
15	1 493 10	1493 10
18	1 030 00	1030 00
20	607 60	607 60
21	458 80	458 80
26	250 00	250 00
27	303 80	303 80
29	250 00	250 00
10/2	352 80	352 80
11	894 40	894 40
13	1 800 00	1800 00
16	952 50	952 50
16	1 325 00	1325 00
18	1 364 70	1364 70
19	333 20	333 20
20	280 00	280 00
22	735 00	735 00
23	245 00	245 00
29	518 50	518 50
30	250 00	250 00
11/5	245 00	245 00

6	245 00		245 00	
8	1 000 00		1 000 00	
15	843 50		843 50	
16	905 28		905 28	
17	580 70		580 70	
20	1 622 00		1 622 00	
22	250 00		250 00	
23	735 00		735 00	
24	245 00		245 00	
28	735 00		735 00	
30	770 00		770 00	
30	1 253 18		1 253 18	
12/3	716 62		716 62	
-6	12 50		12 50	
10	12 50		12 50	
11	291 55		291 55	
12	1 050 50		1 050 50	
13	1 711 02		1 711 02	
		Deposits	Notes Payable	Collection.
	Bank	J L Bales	J L Bayles	from Sales
14	280 00			280 00
15	428 75			428 75
17	1 548 05			1 548 05
17	837 90			837 90
			J M Owen	
				<u>Exhibit 5.</u>

18	525 00	525 00
20	888 30	888 30
27	1201 72	1201 72
29	1225 00	1225 00
1924		
1/3	303 80	303 80
-5	217 15	217 15
7	630 00	630 00
8	850 00	850 00
8	200 00	200 00
9	965 00	965 00
11	499 25	499 25
14	12 50	12 50
16	3522 55	3522 55
17	1434 65	1434 65
18	250 00	250 00
19	891 38	891 38
22	1412 50	1412 50
23	1504 20	1504 20
24	388 80	388 80
29	310 00	310 00
30	583 80	583 80
2/1	405 70	405 70
-6	40 00	40 00
7	310 00	310 00

8	1457 50	1457 50
2/13	1265 86	1265 86
-14	325 00	325 00
16	1250 15	1250 15
18	858 20	858 20
21	900 85	900 85
23	326 59	326 59
26	1600 70	1600 70
29	669 40	669 40
3/1	303 80	303 80
11	91 91	91 91
11	107 25	107 25
12	830 55	830 55
12	280 00	280 00
13	1429 53	1429 53
14	250 00	250 00
15	2965 14	2965 14
17	620 95	620 95
21	316 15	316 15
25	155 00	155 00
4/8	650 85	650 85
-9	300 00	300 00
10	303 80	303 80
11	747 90	747 90
17	147 00	147 00

Exhibit 5.

	Deposits	Notes Payable	Collection.	J. L. Bayles	J. M. Owen
	Bank	J) L Bales	from Sales		
17	843 29		843 29		
18	688 00		688 00		
19	200 00		200 00		
22	12 25		12 25		
25	250 00		250 00		
28	100 00		100 00		
5/16	304 17		304 17		
-17	225 00		225 00		
20	508 45		508 45		
26	20 00		20 00		
27	290 00		290 00		
27	350 00		350 00		
28	50 00		50 00		
31	150 00		150 00		
6/4	100 00		100 00		
6/6	1500 00		1500 00		
6/10	125 00		125 00		
6/12	341 75		341 75		
6/14	299 00		299 00		
6/17	125 00		125 00		
6/19	900 00		900 00		
6/25	24 50		24 50		
6/28	210 00		210 00		

7/1	415 00
11	204 00
18	482 70
25	454 56
31	315 00
8/1	310 00
-5	40 00
12	158 36
16	50 00
18	100 00
20	522 50
21	280 75
22	321 80
9/5	200 00
10	41 75
10	100 60
13	300 00
13	54 00
24	75 00
10/7	262 50
9-	101 14
11	75 00
23	15 00
27	265 00
11/3	12 00

		Exhibit 5.			
		J L Bales	J M Owens	Interest	
11/25	123 50				4 75
12/4	1600 00				4 00
-6	7 90				3 00
24	172 25				3 00
26	1500 00				3 00
					3 00
					3 00
					3 00
					2 25
					2 25
					2 50
1925					
1/8	1 71	Collection from Sales			1 71
1/31	4 75				
2/28	4 00				
3/31	3 00				
4/30	3 00				
5/30	3 00				
6/30	3 00				
7/31	3 00				
8/31	3 00				
9/30	2 25				
10/31	2 25				
12/31	2 50				
1926					
1/30	2 50				2 50

2/27	2 50	2 50
3/31	2 50	2 50
4/30	2 00	2 00
5/30	2 00	2 00
6/30	2 25	2 25
7/31	2 25	2 25
8/30	2 25	2 25
9/30	2 25	2 25
10/31	2 25	2 25
11/30	2 25	2 25
12/31	2 25	2 25
1927		
<hr/>		
1/31	2 25	2 25
2/28	2 25	2 25
3/31	2 25	2 25
4/30	2 25	2 25
5/31	1 50	1 50

Totals	113,722 31	3,000 00	110,303 51	257 30	90 00	71 50
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Summary of Revenues Collected

Deposits in Bank	113,722 31
Receipts from loans	3,000 00
Receipts from sales	110,303 51

Exhibit 6.

Advanced by J L Bales	257 30
Advanced by J M Owen	90 00
Receipts from Interest	71 50
	<hr/>
	113,722 31
	<hr/>
	113,722 31

Summary Cash Disbursed
FIRST NATIONAL BANK

12/21 -1922 to 4/15-27

Paid for Equipment	29615 02
" " Legal Expense	12602 02
" " Truck Expense Gas & Oil	2912 66
" " Expense	4659 02
" " Labor Miscellaneous	13723 81
" " Supplies	19930 06
" " Labor Owens	11017 98
" " " Bales	11185 27
" " Patents	5000 00
" " Notes Payable	3000 00
Disbursed by Bank	<hr/>
	113645 84
	<hr/>
	113645 84

rsed by
unk
0 00
6 10
1 50
9 00
2 53
2 30
4 02
6 25
1 60
8 80
4 28
5 00
0 00
2 53
8 75
0 00
0 00
7 50
0 00
0 00
0 00
4 02
5 09
0 00
7 30
1 88
2 10
2 50
3 25
2 00
6 60
4 86
0 00
5 00
1 80
3 80
0 00
2 28
0 00
0 00
6 00

Exhibit 6,

Advanced by J L Bales	257 30
Advanced by J M Owen	90 00
Receipts from Interest	71 50
	<hr/>
	113,722 31
	<hr/>
	113,722 31

Summary Cash Disbursed
 FIRST NATIONAL BANK
 12/21 -1922 to 4/15-27

Paid for Equipment	29615 02
" " Legal Expense	12602 02
" " Truck Expense Gas & Oil	2912 66
" " Expense	4659 02
" " Labor Miscellaneous	13723 81
" " Supplies	19930 06
" " Labor Owens	11017 98
" " " Bales	11185 27
" " Patents	5000 00
" " Notes Payable	3000 00
Disbursed by Bank	113645 84
	<hr/>
	113645 84
	<hr/>
	113645 84

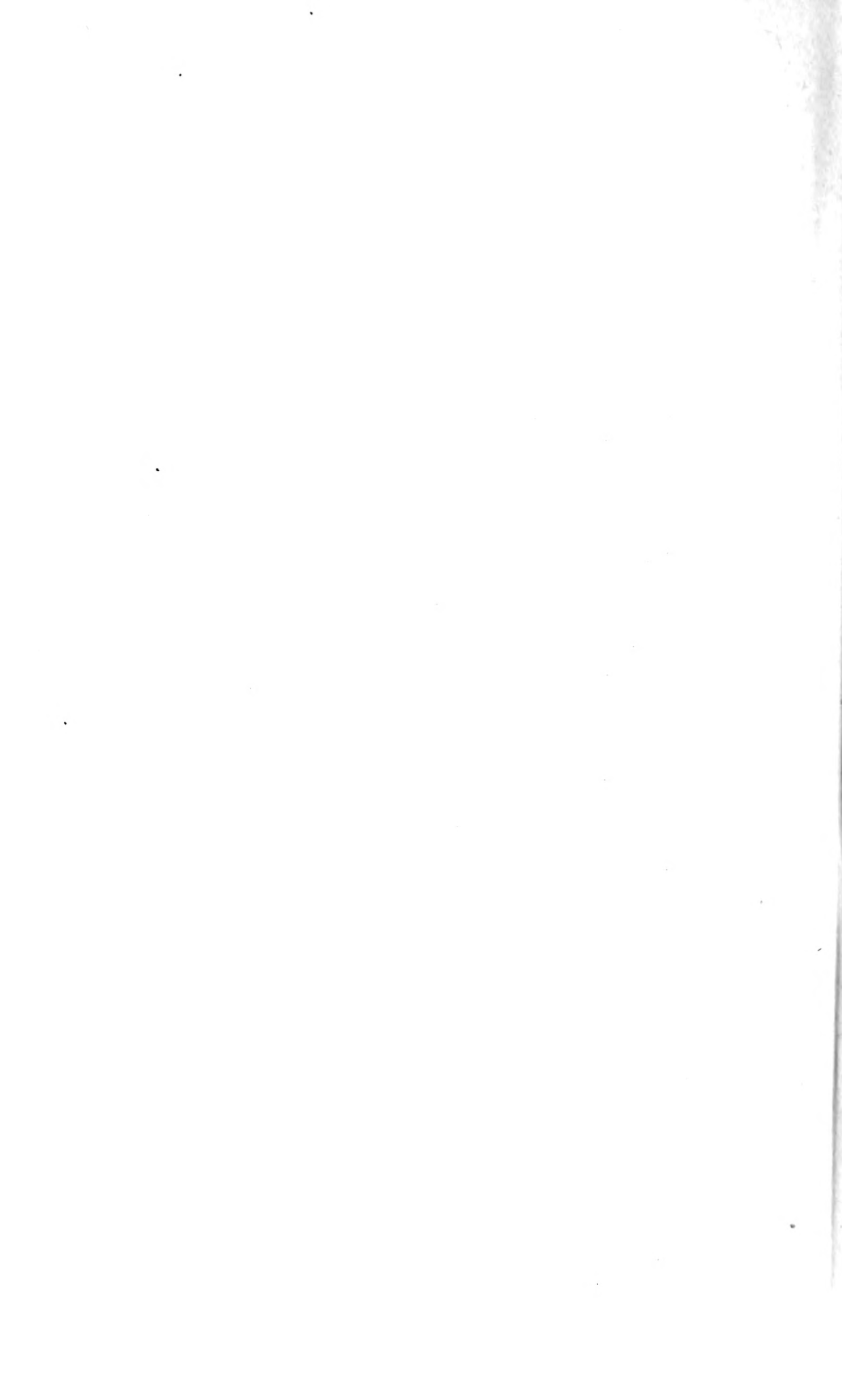
DISBURSEMENTS
OWEN OIL WELL CEMENTING COMPANY
December 26th, 1922 to April 1st, 1927.

Co-Partnership

J. M. Owen and J. L. Bales

Exhibit 6

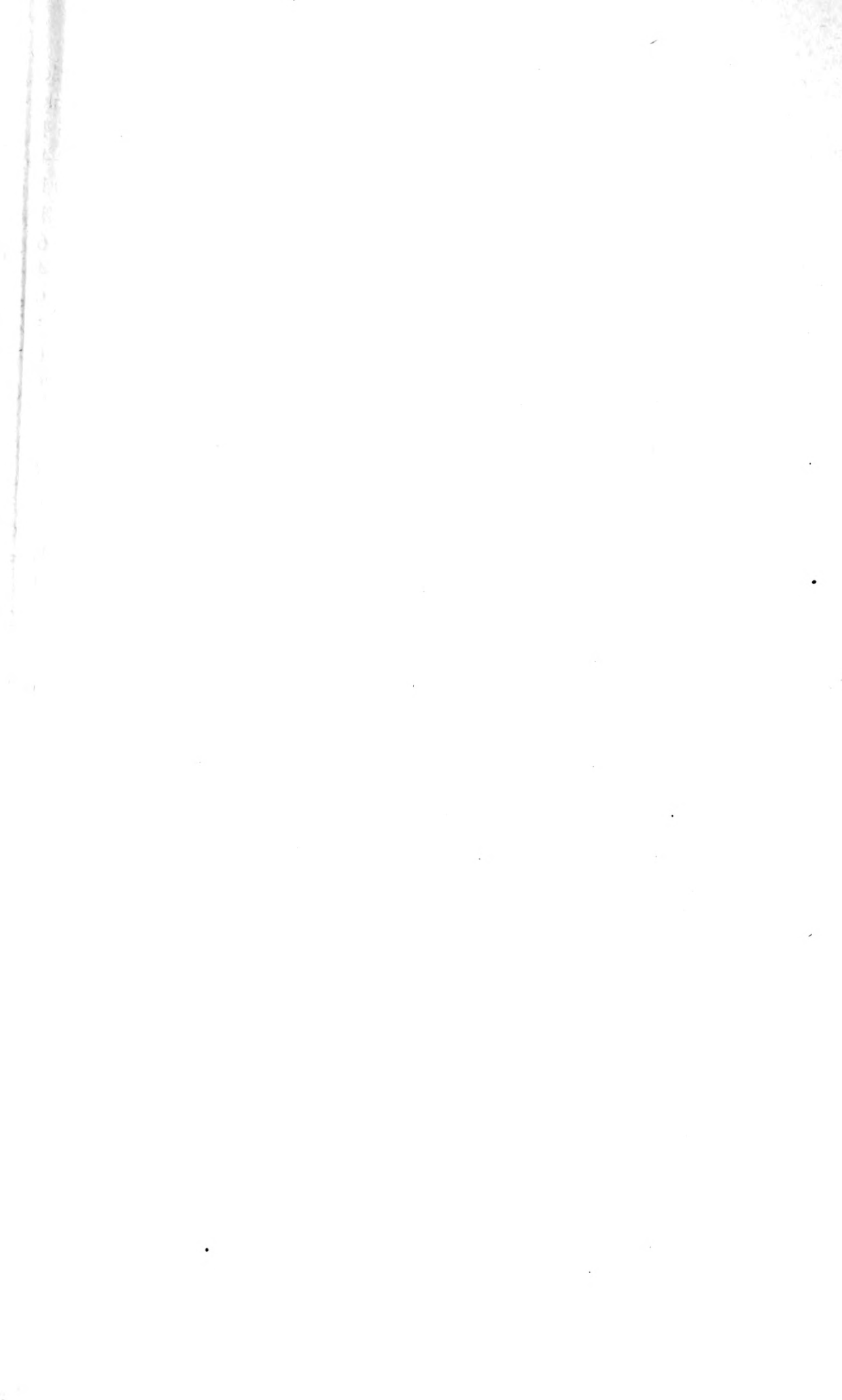
		Disbursed by	Truck Expense				Labor	Supplies	J. M. Owen	J. L. Bales	Patents	Notes Payable
			Bank	Equipment	Legal	Gas & Oil						
12/26-22	Star Drilling Co.	Equipment	100.00	100.00								
-	H M Knenart	Engine	75 00	75 00								
12/28	J L Bales	Truck	25 00		25 00							
12/29	Kimball Motors	Truck	700 00	700 00								
1923												
1/3	J M Owen	Ford	225 00	225 00								
1/9	Star Drilling Co.	Pumps	698 50	698 50								
1/13	J L Bales	Miscl.	54 30	49 70								
1/16	Standard Oil Co.	Oil	9 50			1 60		3 00				
1/19	Star Drilling Co.	Equipment	300 00	300 00								
1/19	Mrs Alice Murray	Truck	100 00	100 00								
1/30	J L Bales	Miscl.	30 85	15 00		1 80		7 55	6 50			
1/31	F A McKenzie	License	8 80					8 80				
2/1	Hendersons	Office Stat.	9 25					9 25				
2/5	Winstead Bros.	Photos	8 50					8 50				
2/10	First Nat'l Bank	Car	34 02	34 02								
2/10	Argo Engine Co.	Equipment	120 33						120 33			
2/10	Tarr & Ware	Equipment	48 16	48 16								
2/10	Oil Well Supply	Equipment	68 64						68 64			
2/10	L B Tank Co	Equipment	47 50	47 50								
2/12	Wigle Cottengin O W C Co.	Cement	177 65						177 65			
2/12	Merrell S & D Co.	Plugs	19 50						19 50			
2/17	First Nat'l Bank	Truck	191 27	190 00				1 27				
2/16	Kimball Motors	License	25 40					25 40				
2/16	C E Owen	Labor	17 50						17 50			
2/23	C A Smith	Labor	50 00						50 00			
3/1	C H Bowden	Signs	7 00					7 00				
3/2	Mrs. Alice Murray	Truck	100 00	100 00								
3/2	Greens	Printing	34 00					34 00				
3/5	C A Smith	Labor	30 00						30 00			
3/5	J M Owen	Labor	250 00							250 00		
3/5	J M Owen	Expense	7 20			7 20						
3/5	J L Bales	Labor	250 00							250 00		
3/5	J L Bales	Expense	40 50					40 50				
3/8	Cottengin & Wigle	Outfit for cementing	100 00						100 00			
3/10	Standard Oil Co.	Gas & Oil	55 75			55 75						
3/10	Day & Churchill	Supplies	1 50						1 50			

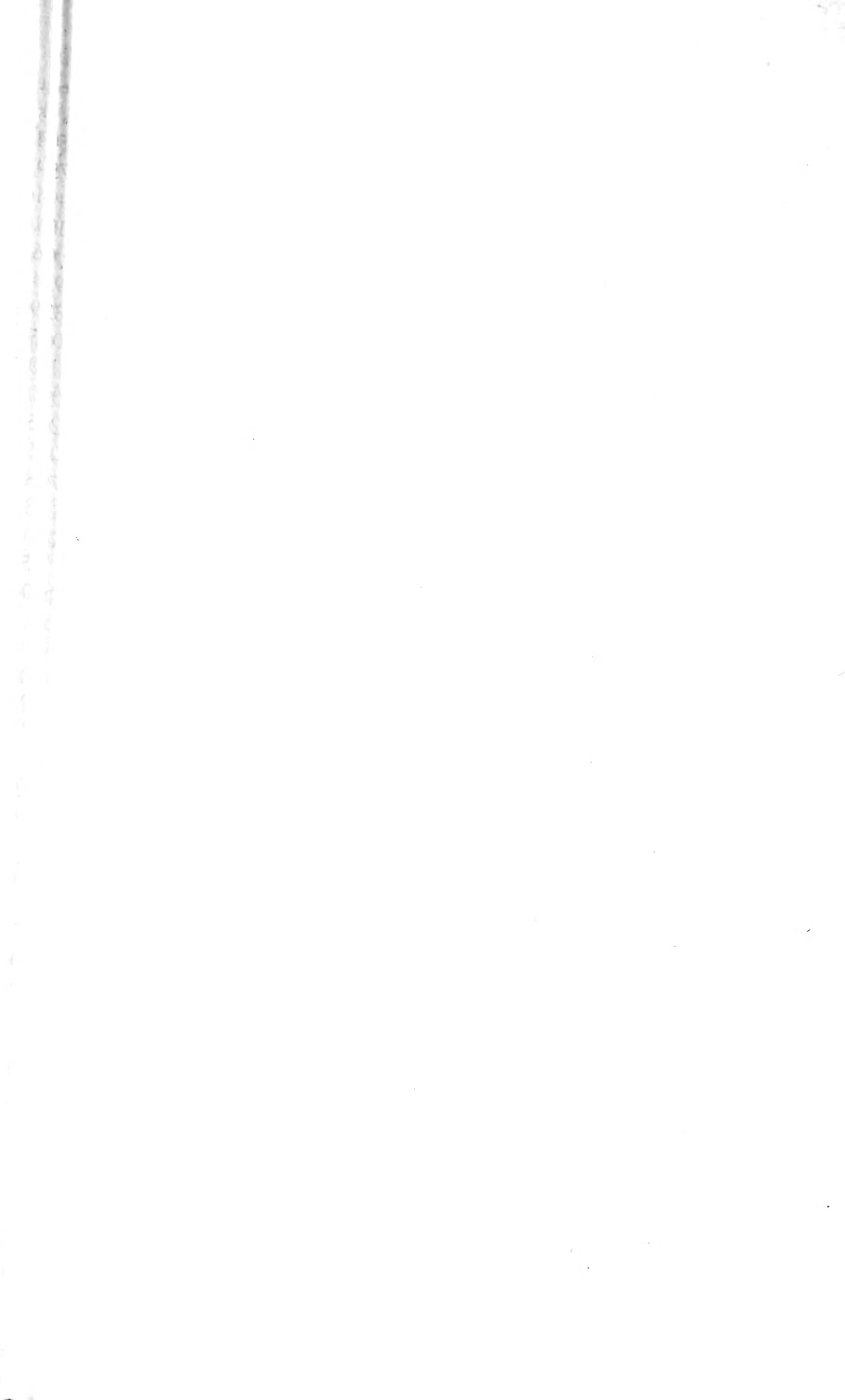


		Disbursed by			Truck Expense							
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
4/25	C M Woods Co.	Chemical						100 00				
4/24	Industrial Finance Corporation	Truck	113 90					100 00				
4/25	J M Owen	Labor							200 00			
4/25	J M Owen	Parts										
4/25	J L Bales	Labor	200 00									
4/25	J L Bales	Expense	36 60			15 05				200 00		
4/28	J M Owen	Legal	51 85		51 85							
4/28	Malcom Davis Co.	Insurance	58 00			58 00						
5/1	H O Bales	Labor	100 00				100 00					
5/1	H H Brazzell	Labor	75 00				75 00					
	M E Inskup	Labor	50 00				50 00					
5/10	M E Inskup	Plug	500 00								500 00	
5/12	First Nat'l Bank	Ford	34 02	34 02								
5/14	Oil Well Supply	Supply	49 53					49 53				
5/14	Standard Oil Co.	Gas	34 39		34 39							
	Dobney Oil Syndicate	Gas	10 05		10 05							
	Kimball Motors Corp.	Repairs	18 50		18 50							
	Tarr & Ware	Supplies	23 72									
	Merrell S & D Co.	Supplies	72 00									
	L B Nat'l Bank	Ford	45 09	45 09								
5/17	H O Bales	Labor	100 00				100 00					
5/18	First Nat'l Bank	Truck	195 07	190 00		5 07						
5/21	J M Owen	Repairs	14 80		14 80							
	H H Brazzell	Labor	75 00				75 00					
5/21	Curtis & Christenson	Repairs	3 90		3 90							
	Jones Hardware	Supplies	4 10					4 10				
5/24	Industrial Finance Corp.	Truck	114 54	114 54								
	W. A. Rubber Co.	Supplies	8 85					8 85				
6/1	O L Dudley	Labor	115 00				115 00					
	H H Brazzell	Labor	75 00				75 00					
	H O Bales	Labor	100 00				100 00					
6/5	E W Hopkins	Tax	60 45			60 45						
6/4	Brown Bevis Co.	Mch	105 00	105 00								
6/6	C M Woods Co.	Chemical	200 00					200 00				
6/9	O L Dudley	Labor	24 00				24 00					
6/12	M E Inskup	Patent & Interest	512 00								500 00	
	F A McKenzie	Ford	45 09	45 09								
	First Nat'l Bank	Ford	34 02	34 02								
	W. A. Rubber Co.	Supplies	129 75					129 75				
	W Porter & Co.	Supplies	74 14					74 14				
	Wigle & McBride	Supplies	29 36					29 36				

		Disbursed by		Truck Expense and							Patents	Notes Payable
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owen	J L Bales		
	L B Iron Works	Supplies	75 42		40 10							
	Oil Well Supply Co.	Supplies	54 42		8 10							
	Standard Oil Co.	Gas	40 10					75 42				
	Dobney Oil Syndicate	Gas	8 10					54 42				
	Wigle & Cottingin OWC Co	Supplies	33 67					33 67				
	Tarr & Ware	Supplies	5 45					5 45				
	Jones Hardware	Supplies	2 90					2 90				
	B & B Welding Co.	Supplies	3 50					3 50				
	R H Briggs	Hauling	5 00		5 00							
6/15	H O Bales	Labor	100 00				100 00					
	H H Brazell	Labor	87 50				87 50					
	Worthing Pump Co.	Equipment	58 65	58 65								
	A E Fickling Lbr Co.	Equipment	76 85	76 85								
	First Nat'l Bank	Truck	196 33	190 00		6 33						
	O L Dudley	Labor	16 00				16 00					
	WE Inskup	Interest	49 58			49 58						
6/18	Packard Truck Co.	Hauling	15 00		15 00							
	C M Woods Co.	Chemical	125 00					125 00				
6/19	J L Bales	Misc.	55 83			55 83						
6/21	Greens	Printing	3 00			3 00						
6/22	Industrial Fin. Corp.	Truck	115 10	115 10								
	C M Woods Co.	Chemical	100 00					100 00				
6/23	Star Drilling Co.	Equipment	600 00	600 00								
	J M Owen	Misc.	12 25			12 25						
6/25	Brown Bevis Co.	Supplies	103 20	103 20								
6/27	J L Bales	Misc.	81 50			81 50						
	H O Bales	Lumber	44 00					44 00				
6/29	Westhall & Wallace	Legal	100 00		100 00							
6/30	H H Brezell	Labor	87 50				87 50					
6/15	J M Owen	Labor	100 00						100 00			
6/23	J M Owen	Labor	150 00						150 00			
6/23	J L Bales	Labor	300 00							300 00		
6/9	J M Owen	Labor	50 00						50 00			
6/30	C L Dudley	Labor	38 00				38 00					
	H O Bales	Labor	100 00				100 00					
7/5	Jones Hardware Co.	Supplies	14 44					14 44				
	Westhall & Wallace	Legal	150 00		150 00							
7/6	J L Bales	Misc.	11 00			11 00						
	J M Owen	Labor	75 00						75 00			
	J L Bales	Labor	75 00							75 00		
7/7	C L Dudley	Labor	10 00				10 00					

			Disbursed by		Truck Expense and			Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
			Bank	Equipment	Legal	Gas & Oil	Expense						
7/9	W A Rubber Co.	Supplies	128 59					128 59					
	John Trouth	Auto	6 75			6 75							
	Tarr & Ware	Supplies	47 49					47 49					
	B & B Welding Co.	Supplies	6 10					6 10					
	H E Beavers	Supplies	27 00					27 00					
	Oil Well Supplies	Supplies	50 92					50 92					
	American W & P Co.	Supplies	43 37					43 37					
	Packard Truck Co.	Hauling	5 00			5 00							
	First Nat'l Bank	Ford	34 02	34 02									
	L B Nat'l Bank	Ford	45 09	45 09									
	The Sullivan Co.	Chemical	142 20					142 20					
	W Porter Co.	Supplies	40 01					40 01					
	L B Iron Works	Supplies	72 79					72 79					
	Standard Oil Co.	Gas & Oil	62 14			62 14							
	C M Woods Co.	Chemical	245 74					245 74					
7/11	M E Inskip	Patents, Interest and Royalties	354 40				54 40					300 00	
7/11	J M Owen	Labor	50 00						50 00				
	J L Bales	Labor	50 00							50 00			
	H O Bales	Supplies	3 45					3 45					
	Greens	Printing	5 00				5 00						
7/14	John Trouth	Labor	100 00					100 00					
	H O Bales	Labor	100 00					100 00					
7/14	H H Brazell	Labor	87 50					87 50					
7/16	First Nat'l Bank	Interest	81 03				81 03						
7/18	First Nat'l Bank	Truck	197 00	190 00			7 00						
	J M Owens	Labor	50 00						50 00				
	J L Bales	Labor	50 00							50 00			
7/21	Industrial Fin. Corp.	Truck	116 08	116 08									
	Brown Bevis Co.	Supplies	103 77	103 77									
7/23	Star Drilling Co.	Equipment	600 00	600 00									
7/24	J M Owen	Labor	100 00						100 00				
	J L Bales	Labor	100 00							100 00			
	J L Bales	Expense	29 53				29 53						
7/26	J M Owen	Expense	4 45				4 45						
	J L Bales	Expense	59 76				59 76						
	A E Fickling Lbr Co.	Supplies	25 65					25 65					
7/28	O L Dudley	Labor	30 00						30 00				
7/31	J M Owen	Expense	36 50				36 50						
7/27	Greens	Printing	6 50				6 50						
7/31	John Trouth	Labor	133 33						133 33				





			Disbursed by		Legal	Truck Expense		Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
			Bank	Equipment		Gas & Oil	Expense						
8/30	J M Owen	Exp.	10 00										
	J M Owen	Labor	100 00										
	J L Bales	"	100 00							100 00			
9/1	John Trouth	Labor	125 00					125 00			100 00		
	H O Bales	Labor	100 00					100 00					
	H H Brazell	Labor	87 50					87 50					
	B Brazell	Labor	75 00					75 00					
	Star Drilling Co.	Equipment	800 00	800 00									
	A S Goldsmith	Supplies	4 14						4 14				
	L S Hammer	"	150 00						150 00				
9/4	First Nat'l Bank	Truck	102 10	102 10									
	L B National Bank	Truck	225 45	225 45									
9/6	R H Briggs	Hauling	30 00			30 00							
	Tarr & Ware	Supplies	106 09						106 09				
	W Porter & Co.	Supplies	21 78						21 78				
	Curtis & Christinson	Supplies	3 78						3 78				
	H E Dawers	Supplies	5 25						5 25				
	L B Iron Works	"	38 95						38 95				
	L B Transfer	Hauling	9 00			9 00							
	W A Rubber Co.	Supplies	11 48						11 48				
	Jones Hardware Co.	Supplies	13 15						13 15				
9/7	Kimball Motor Corp.	Repairs	42 26			42 26							
	Packard Truck Co.	Hauling	15 00			15 00							
	Oil Well Supplies Co.	Supplies	34 77						34 77				
	J L Bales	Expense	14 00						14 00				
9/10	M E Inksp	Patent, Int. & Roy.	374 90						74 90			300 00	
	Cans Lbr Co	Plugs	100 00						100 00				
9/13	Sullivan Co	Chemical	404 25						404 25				
	Standard Oil Co.	Gas & Oil	99 58			99 58							
9/14	Cans Lbr Co	Plugs	108 00						108 00				
	Central Machine Works	Supplies	5 50						5 50				
9/14	L A Rubber Co.	Supplies	37 65						37 65				
9/15	First National Bank	Truck	200 14	190 00			10 14						
	Industrial Finance Corp.	Truck	117 20	117 20									
	Cans Lbr Co.	Supplies	19 00						19 00				
	G W Greane	Labor	36 25					36 25					
	S Wickham	Labor	25 00					25 00					
	O L Dudley	Labor	67 50					67 50					
	H O Bales	Labor	100 00					100 00					
	John Trouth	Labor	125 00					125 00					

		Disbursed by		Legal	Truck Expense			Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
		Bank	Equipment		Gas & Oil	Expense							
	H H Brezell	Labor	100 00				100 00						
	Boyd Brezell	Labor	75 00				75 00						
	John Trouth	Labor	34 00				34 00						
9/17	Moreland Sales Corp.	Truck	500 00	500 00									
	Moreland Sales Corp.	Tax	13 90										
9/18	H O Melone	Ford	300 00	300 00									
	J L Bales	Exp.	37 95			37 95							
	Westall & Wallace	Legal	121 60		121 60								
	Superior Garage	Repair	111 75			111 75							
9/20	Central Machine Wks	Supplies	7 35					7 35					
9/21	Sam Wickham	Building	33 75	33 75									
9/22	H O Bales	Lbr	50 00				50 00						
-	Army & Navy	Equipment	18 30	18 30									
	Bogle Furn Co.	Equipment	23 50	23 50									
	B W Grean	Building	40 00	40 00									
	C L Dudley	"	76 50	76 50									
9/27	Gas & Appliance Co.	"	23 40	23 40									
9/28	Henderson Swanson Co.	Equipment	97 45	97 45									
	L B T & Desk Co.	Equipment	168 00	168 00									
	J L Bales	Building	17 65	17 65									
9/18	J M Owen	Labor	200 00						200 00				
	J L Bales		200 00							200 00			
9/7	J M Owen	Labor	100 00						100 00				
9/7	J L Bales	"	100 00							100 00			
9/8	J L Bales	"	300 00							300 00			
9/20	" "	"	200 00							200 00			
9/20	J M Owens	"	500 00						500 00				
9/28	A O Misher	Bldg.	66 09	66 09									
10/1	C L Dudley	"	45 15	45 15									
	John Trouth	Labor	125 00				125 00						
	H H Brezell	Labor	100 00				100 00						
	B Brazell	Labor	87 50				87 50						
	M Owen	Labor	75 80				75 80						
	J Trouth	Labor	10 00				10 00						
	H H Brezell	Labor	14 00				14 00						
10/2	Moreland Sales Corp.	Insurance	99 50										
10/2	Jones Hardware Co.	Supplies	31 20						31 20				
	W A Rubber Co.	"	12 98						12 98				
	H. E. Deavers	"	5 25						5 25				
	A Well & Prosp Co.	"	5 98						5 98				
	Associated Telephone Co.	Exp.	2 30										
							2 30						

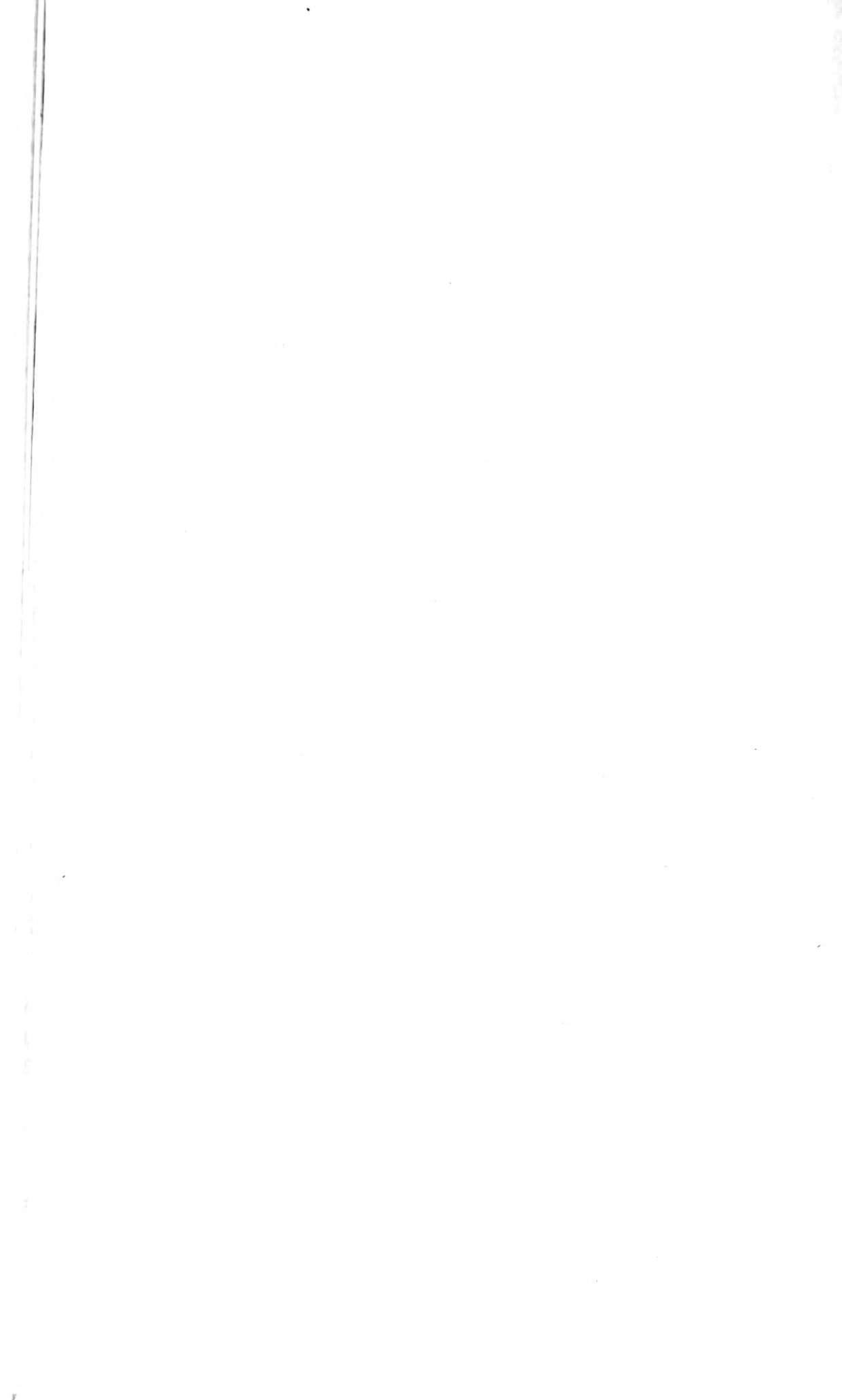
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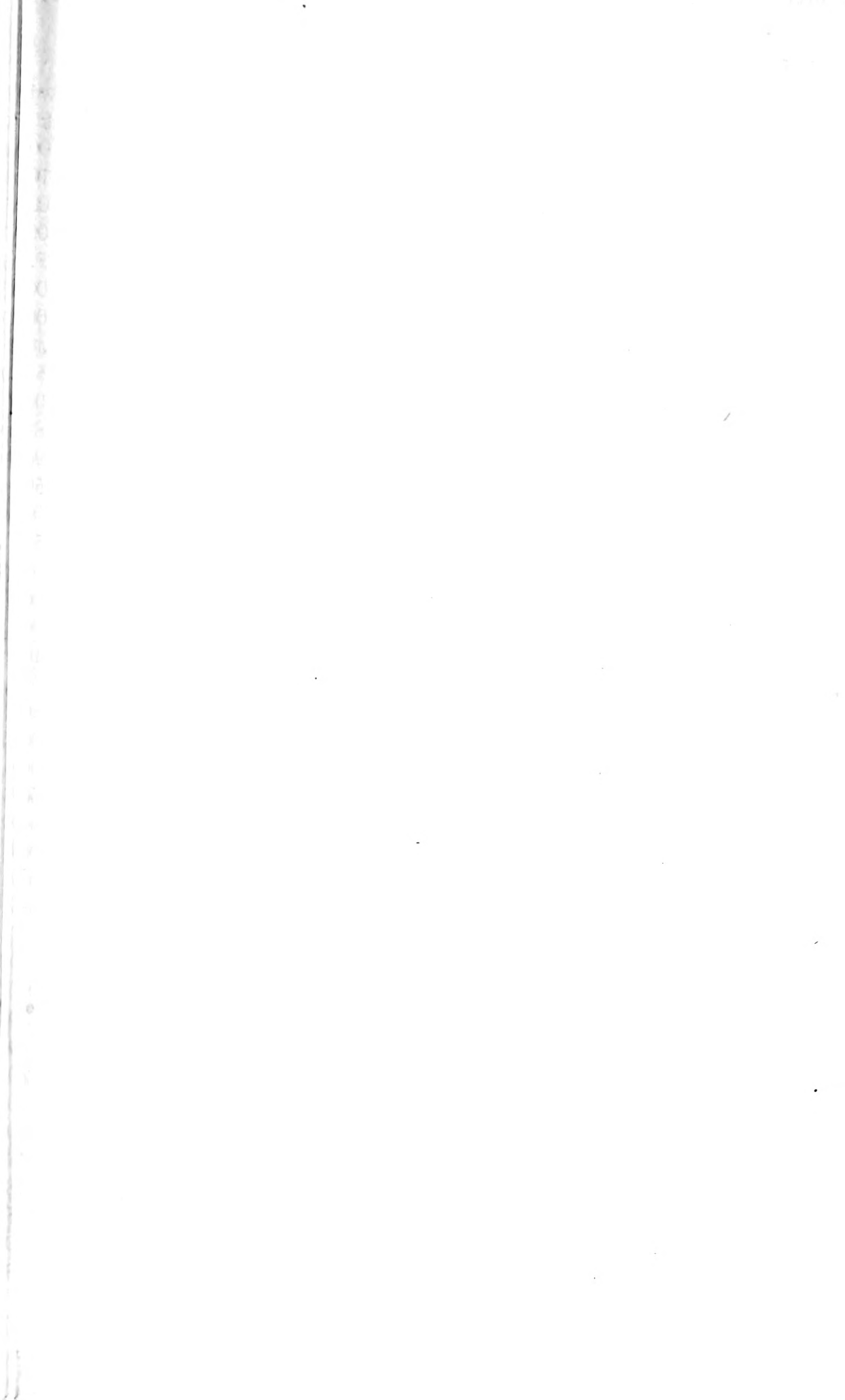
		Disbursed by		Legal	Truck Expense		Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
		Bank	Equipment		Gas & Oil	Expense						
	Glen Clark Co.	Exp.										
10/18	J M Owen	Equipment	21 00			21 00						
	Sullivan Co.	Chemical	35 10	35 10								
	J L Bales	Bldg. & Exp.	1 617 00					1 617 00				
10/19	Herron & Hefferin	Hauling	311 05	302 50								
10/20	S*P Iron & Metal Co.	Saw	2 50		2 50							
	T A Owen	"	165 00	165 00								
10/22	Can Disc Co.	Ford	10 00	10 00								
10/24	A S Goldsmith	Exp.	284 46	284 46								
	R W Elliott	Equipment	9 61			9 61						
10/26	Quinn City S & D Co.	Bldg.	350 00	350 00								
11/1	S P Lbr Co	"	65 88	65 88								
	Am Ave. Hdw. Co.	"	4 96	4 96								
	J T Horne	Labor	5 50	5 50								
	B Brazell	"	75 00				75 00					
	H O Bales	"	87 50				87 50					
	John Trouth	"	125 00				125 00					
	H H Brezall	"	125 00				125 00					
	S Atkinson	"	29 10				29 10					
11/5	J M Owen	Exp.	49 05			49 05						
11/1	M Owens	Labor	87 50				87 50					
11/7	J M Owen	"	100 00						100 00			
	J L Bales	"	100 00							100 00		
11/15	J M Owens	"	200 00						200 00			
	J L Bales	"	200 00							200 00		
11/24	J L Bales	"	500 00							500 00		
	J M Owens	"	500 00						500 00			
11/5	Associated Tele Co.	Exp.	8 65			8 65						
	First Nat'l Bank	Ford	58 13	58 13								
11/6	Ware & Tarr	Supplies	91 11					91 11				
	Fickling Lbr Co.	"	17 95					17 95				
	H O Melone Co.	Ford	22 64		22 64							
11/1	Sullivan Co.	Chemical	323 40					323 40				
11/6	H E Deavers	Supplies	30 66					30 66				
	Crane Co.	"	25 90					25 90				
	Oil Well Supply	"	90 25					90 25				
	R H Briggs	Hauling	10 00		10 00							
	Republic Supply Co.	Supplies	20 67					20 67				
	W A Rubber Co.	"	37 88					37 88				
	Jones Hdw. Co.	"	24 93					24 93				
11/3	H H Brazall	Labor	10 00				10 00					
11/6	Smith & James	Tank	71 00	71 00								
11/8	J M Owen	Hauling	51 50		51 50							
	Clark & Wetepiro	Insurance	93 75			93 75						

Exhibit 6.

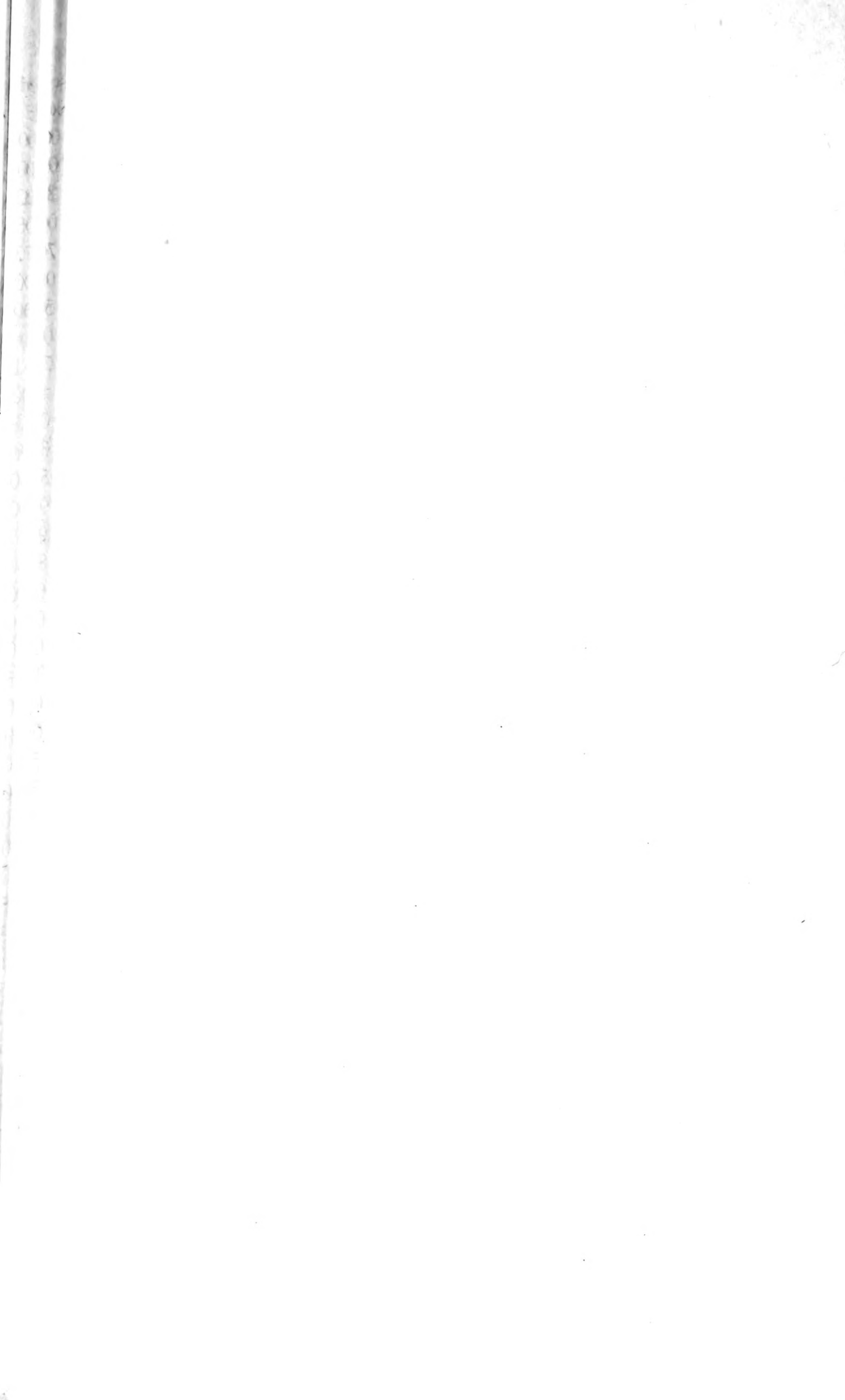
		Disbursed by		Legal	Truck Exp. Gas & Oil	Exp.	Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
		Bank	Equipment									
11/1	Mary Homer Oil W C Co.	25 00						25 00				
11/6	Greens	Prtg 23 00				23 00						
11/8	L B T & Desk Co.	Equip. 12 25	12 25									
11/3	John Trouth	Labor 18 00					18 00					
11/8	Westall & Wallace	Legal 39 75		39 75								
11/5	W A King Lomita Garage	Repair 8 00			8 00							
11/10	J L Bales	Exp. 17 50				17 50						
11/13	J L Bales	Equip & Repair 56 00	50 00		6 00							
11/8	H E Deavers	Supplies 11 73						11 73				
	M E Inskip	Patent, Int. & Roy 375 42				75 42					300 00	
11/13	A M Barker	Legal 30 00		30 00								
11/8	L B Iron Works	Supplies 84 31						84 31				
11/6	Packard Truck Co.	Hauling 10 50			10 50							
11/10	Standard Oil Co.	Gas & Oil 97 92			97 92							
11/15	Hill St. Garage	Repairs 69 95			69 95							
11/8	W Porter Co.	Supplies 124 88						124 88				
11/16	S. Atkinson	Labor 50 00					50 00					
	H O Bales	" 100 00					100 00					
11/17	J M Owens	Equip & Exp. 30 07	17 65			12 42						
11/7	B & B Welding Co.	Supplies 4 10						4 10				
11/16	H H Breazell	Labor 125 00					125 00					
	H H Breazell	" 22 00					22 00					
	M Owens	" 87 50					87 50					
	B Brazell	" 87 50					87 50					
	J F Horne	" 87 50					87 50					
	J Trouth	" 125 00					125 00					
	" "	" 22 00					22 00					
11/14	Cans Lbr Co.	Plugs 79 65						79 65				
11/17	F L Darlinz	Truck 612 24	612 24									
11/16	First Nat'l Bank	Truck 202 66	190 00			12 66						
11/20	Industrial Finance Corp.	Truck 119 24	119 24									
11/21	S Atkinson	4 00	4 00									
11/20	G F Hinsck	Taxes 4 62				4 62						
11/21	J M Owen	Advertising 90 00				90 00						
11/24	Moreland Motor Truck Co.	Truck 296 97	296 97									
	Malcom Doans Co.	Insurance 54 90				54 90						
	J L Bales	Expense 22 35				22 35						
11/30	R W Elliott	Supplies 375 00						375 00				
11/26	Moreland M Truck Co.	Truck 298 93	298 93									
12/1	H O Bales	Labor 125 00					125 00					
	H H Breazall	" 155 00					155 00					



	Disbursed by	Bank	Equipment	Legal	Truck Exp		Labor	Supplies	J M Owen	J L Bales	Patent
					Gas & Oil	Expense					
	S H Atkinson	"					62 50				
	M Owen	"					100 00				
	B Brazell	"					100 00				
	J T Horne	"					100 00				
11/24	J P Doyle	Legal		5 00							
12/1	F L Darling	Rep				23 70					
11/30	Central Mch Wks	Supplies						5 98			
12/1	John Truth	Labor						161 00			
12/3	Star Drilling Co.	Equipment	1500 00		1500 00						
12/1	J M Owen	Labor	250 00						250 00		
12/6	Glen L. Clarke	Cigars	23 00								
12/6	Hill St. Garage	Repairs	6 00			6 00					
12/10	Associated Tele Co.	Expense	15 15				15 15				
	So. Co Gas Co.	Expense	1 38				1 38				
	J L Bales	Expense	19 90				19 90				
	Crane Co.	Supplies	26 18					26 18			
	R H Briggs	Hauling	7 00			7 00					
	O G Miller	Bookkeeper	134 50				134 50				
	H E Deaver	Supplies	24 35					24 35			
	Ware & Tare Corp.		100 65					100 65			
12/5	J L Bales	Exp.	28 70				28 70				
12/10	L B Iron Works	Sup	157 81					157 81			
	Shell Co.	Gas & Oil	100 00			100 00					
	Oil Well Sup Co.	Supplies	78					78			
12/10	J F Horne	Labor	67 50				67 50				
	Republic Supplies Co.	Supplies	85 88					85 88			
12/1	M E Inskip	Patent, Int. & Roy	415 66				115 66				300 00
12/10	Jones Hardware	Supplies	14 99					14 99			
	A S Goldsmith	"	6 73					6 73			
	W A Rubber Co.	"	234 96					234 96			
	Packard Truck Co.	Hauling	8 75			8 75					
	Jerry Lyon Truck Co.	"	7 00			7 00					
	Ed Crail	"	3 50			3 50					
	Standard Oil Co.	Gas & Oil	89 30			89 30					
12/8	John Yates	Labor	5 00					5 00			
	First Nat'l Bank	Truck	203 94		190 00		13 94				
	T Owen	Labor	63 20					63 20			
12/15	H O Bales	"	125 00					125 00			
	S H Atkinson	"	62 50					62 50			
	H H Breazell	"	100 00					100 00			
	John Truth	" 4	125 00					125 00			
	M Owen	"	100 00					100 00			
	H H Breazell	"	125 00					125 00			



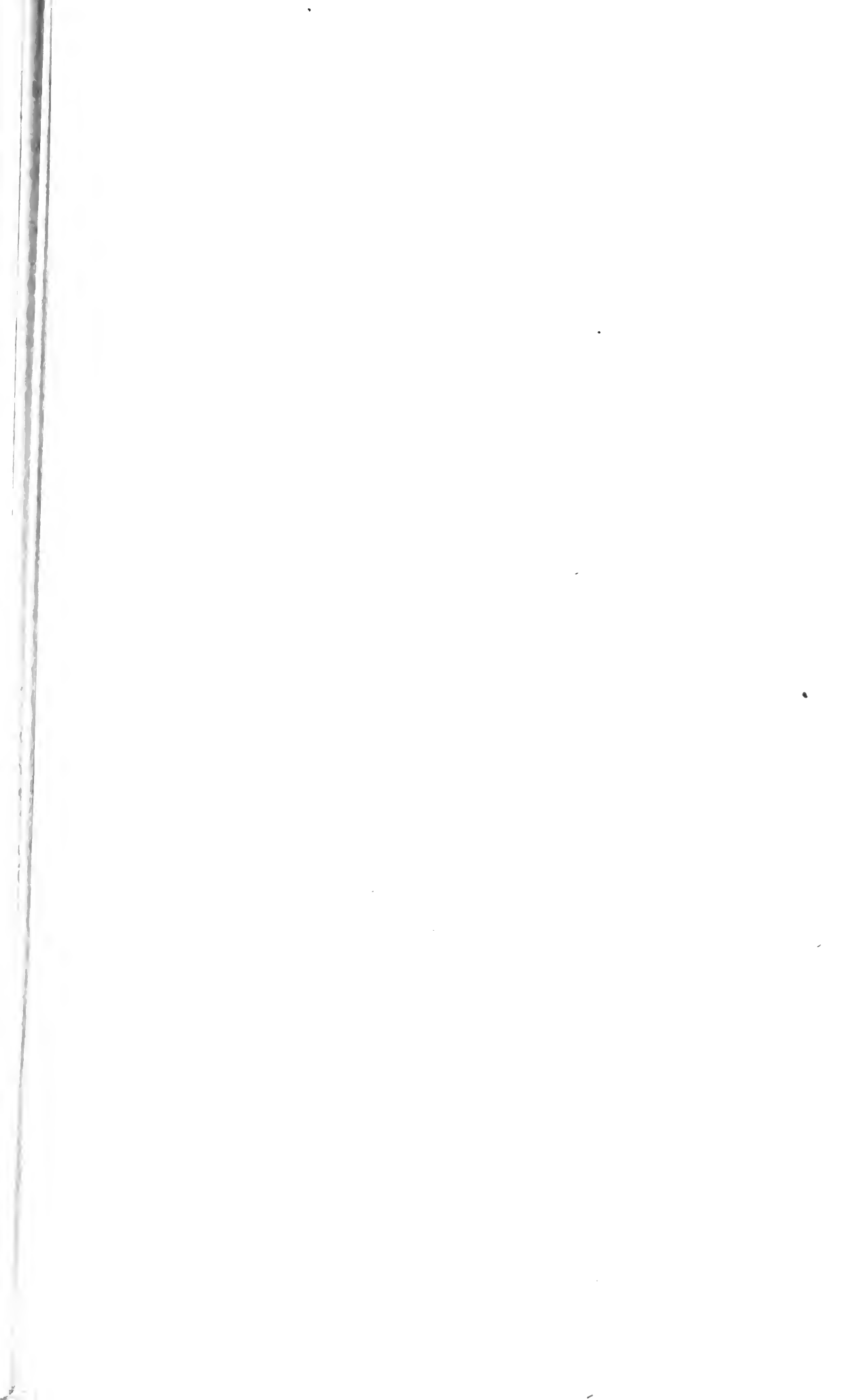
		Disbursed by			Truck Exp.						Exhibit 6.	
		Bank	Equipment	Legal	Gas & Oils	Expense	Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
	Shell Co.	Gas & Oil			100 00							
12/18	J L Bales	Expense				33 74						
12/15	H O Mekone	Repairs			13 77							
12/18	Glen L. Clark	Cigars				19 20						
12/17	W Porter Co.	Supplies						55 00				
	First Nat'l Bank	Notes Pay.			2020 85	20 85						2000 00
12/14	H L Bales	Expense				24 40						
12/22	R W Elliott	Supplies			550 00			550 00				
	Worthington Co.	"			45 30			45 30				
12/26	S H Atkinson	Labor			62 50		62 50					
12/24	Clark & Maspiro	Insurance			26 25	26 25						
	Glen L. Clark	Cigars			23 00	23 00						
	R W Elliott	Supplies			41 65			41 65				
	Mrs. J. M. Owen	Office			70 50	70 50						
12/14	Sullivan Co.	Chemical			1239 00			1239 00				
12/24	Industrial Fin. Co.	Truck	120 10		120 10							
	Citizens Nat'l Bank	Truck	300 90		300 90							
	Graham Brothers	Bldg.	50 46	50 46								
12/29	J L Bales	Exp.			23 70	23 70						
12/28	Westall & Wallace	Legal		500 00								
	J M Owen	Labor			200 00				200 00			
	J L Bales	Labor			200 00					200 00		
12/1	J L Bales	Labor			250 00					250 00		
12/21	J M Owen	Labor			600 00				600 00			
	J L Bales	Labor			600 00					600 00		
12/12	J M Owen	Advertising			110 00	110 00						
12/29	Greens Printing	Printing			6 50	6 50						
	Jones Hardware	Supplies			14 57			14 57				
	Tarr & Ware Corp.	"			38 51			38 51				
	Star Drilling Co.	Equipment	500 00	500 00								
12/31	John Trouth	Labor			125 00		125 00					
	H H Breazell	Labor			125 00		125 00					
	B Breazell	"			100 00		100 00					
	M Owen	"			100 00		100 00					
	T Owen	"			100 00		100 00					
	H O Bales	"			125 00		125 00					
	M E Inskup	Pat. Int. & Roy.			401 92						300 00	
	J L Bales	Expense			13 82	13 82						
	H H Breazell	Labor			50 00		50 00					
	John Trouth	"			44 00		44 00					
12/15	W O Welch	Tax			8 66	8 66						
12/24	Shell Co.	Gas & Oil			23 63	23 63						



1924	A Well & Prosp Co.	Supplies	Disbursed by			Truck Expense			Supplies 124 18	J M Owen	J L Bales	Patents
			Bank 124 18	Equipment	Legal	Gas & Oils	Expense	Labor				
	J L Bales	Expense	15 85					15 85				
1/2	Associated Tele Co.	"	12 75					12 75				
1/3	L B Iron Works	Supplies	120 97						120 97			
1/5	E Crail	Hauling				3 00						
	J Lyon	"	7 60			7 60						
1/5	C R Cann	Repairs	3 50			3 50						
	H O Melone	"	31 89			31 89						
	A E Fickling	Supplies	4 80						4 80			
1/5	Crane Co.	Supplies	37 48						37 48			
	Kipp Supplies Co.	"	18 20						18 20			
	Republic Supplies Co.	"	62 36						62 36			
1/7	W A Rubber Co.	"	367 56						367 56			
1/8	H E Deavers	"	10 19						10 19			
	Westall & Wallace	Legal	500 00			500 00						
1/10	Oil Well Supply Co.	Supplies	23 67						23 67			
	L B T & D Co.	Equipment	30 20	30 20								
	J M Owen	Expense	33 35					33 35				
1/11	Doyle & Reynolds	Legal	93 10		93 10							
	First National Bank	Truck	395 30	395 30								
	L B T & D Co.	Expense	3 50					3 50				
1/16	Westall & Wallace	Legal	514 00		514 00							
1/17	Star Drilling Co	Equipment	2300 00	2300 00								
	Sullivan Co.	Chemical	1381 81						1381 80			
	Kimball Motors Co.	Repairs	196 94			196 94						
	Graham Brothers	Bldg.	2 50	2 50								
	J M Owen	Ford	264 00	264 00								
1/12	Merchants Nat'l Bank	Truck	317 47	317 47								
1/19	Kimball Motor Co.	Repairs	130 55			130 55						
	Industrial Finance Corp	Truck	241 20	241 20								
1/23	Citizens National Bank	"	302 86	302 86								
	H C S Oil Co.	Cement	300 00						300 00			
	M Owen	Labor	100 00					100 00				
	B Brezeall	"	100 00					100 00				
	J Trough	"	125 00					125 00				
	S H Atkinson	"	62 50					62 50				
	T Owen	"	100 00					100 00				
	H O Bales	"	125 00					125 00				
	H H Breazall	"	125 00					125 00				
1/18	J L Bales	Expense	10 50					10 50				
	W Porter Co.	Supplies	70 57						70 57			



			Disbursed by			Truck Expense		Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
			Bank	Equipment	Legal	Gas & Oil	Expense						
1/19	Shell Company	Gas & Oil	100 00										
1/22	J M Owen	Licenses	131 00										
1/23	Greens	Printing	35 20										
1/25	J L Bales	Expense	24 85										
1/28	S Atkinson	Labor	62 50				62 50						
1/23	J M Owen	"	1000 00						1000 00				
	J L Bales	"	1000 00								1000 00		
1/10	J L Bales	"	200 00								200 00		
	J M Owen	"	200 00						200 00				
1/19	J M Owen	"	250 00						250 00				
	J L Bales	"	250 00								250 00		
1/29	B Breazell	"	93 25				93 25						
	So Co Gas Co.	Expense	2 73										
	Shell Co. 4	Gas & Oil	50 00			50 00							
1/31	M Owen	Labor	100 00				100 00						
	H O Bales	"	125 00				125 00						
	T Owen	"	100 00				100 00						
	L B Water Dept.	Expense	1 00					1 00					
	H H Breazell	Labor	161 00				161 00						
	John Truth	"	169 00				169 00						
2/1	J L Bales	Expense	17 50					17 50					
2/8	" "	Labor	300 00								300 00		
	J M Owen	"	300 00						300 00				
2/7	Cash	Battery	48 45			48 45							
2/8	Graham Bros.	Expense	2 20					2 20					
	Star Drilling Co.	Equipment	331 63	331 63									
	Jones Hardware	Expense	11 25						11 25				
	Acme Electric Co.	Building	90 07	90 07									
	Hammond Lumber Co.	Supplies	11 86						11 86				
	Crane Co.	"	27 20						27 20				
	Shell Co.	Gas & Oil	30 01			30 01							
2/9	Rex R Shell Co.	Supplies	7 40						7 40				
	H O Bales	Expense	9 50					9 50					
	Ware & Tarr Corp.	Supplies	25 40						25 40				
	Republic Supplies Co.	Supplies	144 61						144 61				
	W A Rubber Co.	"	113 20						113 20				
	J M Owen	Expense	19 50					19 50					
	H O Melone Co.	Repairs	25 53			25 53							
	Associated Tele Co.	Expense	12 00					12 00					
2/21	J W McClatchie Co.	Supplies	389 30						389 30				
2/16	Sullivan Co.	"	1 464 70						1 464 70				



		Disbursed by			Truck Exp.							
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
2/26	J M Owen	Labor	600 00						600 00			
	J L Bales	"	600 00							600 00		
2/23	Shell Co.	Gas & Oil	50 00		50 00							
2/21	Central Machine Works	Supplies	9 40					9 40				
2/27	J L Bales	Expense	28 85			28 85						
2/21	L B Water Dept.	"	1 00			1 00						
2/28	S H Atkinson	Labor	62 50				62 50					
2/13	Greens	Printing	7 00			7 00						
2/16	H O Bales	Labor	125 00				125 00					
2/9	Worthington Co.	Supplies	41 87					41 87				
2/16	I H Atkinson	Labor	62 50				62 50					
2/18	First National	Truck	176 17	176 17								
2/22	J L Bales	Expense	20 80			20 80						
2/21	" "	Labor	350 00							350 00		
	J M Owens	Labor	350 00						350 00			
2/23	Citizens National Bank	Truck	304 84	304 84								
2/14	J M Owen	Labor	350 00						350 00			
	J L Bales	"	350 00							350 00		
2/9	Auto Club	Insurance	208 69			208 69						
2/8	Willowville Oil Tool Co.	Supplies	3 00					3 00				
	Long Beach Iron Works	"	61 41					61 41				
2/16	J L Bales	Expense	13 10			13 10						
2/5	Kipp Supplies	Supplies	24 89					24 89				
2/13	A S Goldsmith	"	6 49					6 49				
2/13	Shell Co.	Gas & Oil	50 00		50 00							
2/16	John Trouth	Labor	125 00				125 00					
	T Owen	"	100 00				100 00					
	H H Beazell	"	125 00				125 00					
	M Owen	"	100 00				100 00					
2/9	Prout & Dutton	Supplies	23 03					23 03				
2/6	M E Inskup	Patents, Int. & Royalties	376 16				76 16				300 00	
2/8	Oil Well Supplies	Supplies	16 21					16 21				
	J Lyon Truck Co.	Hauling	12 15		12 15							
2/26	Industrial Fin. Corp.	Truck	245 30	245 30								
3/1	B Breazell	Labor	113 32				113 32					
	T Owen	Labor	100 00				100 00					
	M Owen	"	100 00				100 00					
	So Co Gas Co.	Expense	1 68			1 68						
	John Trouth	Labor	149 00				149 00					
	H H Beazell	Labor	145 00				145 00					



		Disbursed by		Truck Expense								
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
3/4	H O Bales	125 00					125 00					
	" "	33 35					33 35					
	B Breazell	26 65	4				26 65					
	T Owen	26 65					26 65					
	M Owen	26 65					26 65					
	H H Breazell	41 35					41 35					
	John Trouth	41 35					41 35					
2/8	R M Fulton	Legal 70 00		70 00								
2/21	Am. Well Prosp Co.	Supplies 24 57						24 57				
3/13	J L Bales	Expense 24 15				24 15						
	Associated Tele Co.	" 16 75				16 75						
3/10	M E Inskup	Pat. Int. & Roy. 348 41				48 41					300 00	
3/13	Crane Co.	Supplies 22 23						22 23				
	Hammond Lumber Co.	" 411 82						411 82				
	Jones Hdw. Co.	" 16 30						16 30				
	H O Medone Co.	Repairs 13 20			13 20							
	A S Goldsmith	Supplies 8 17						8 17				
	L B Tele Directory	Adv. 3 50				3 50						
	First Nat'l Bank	Truck 167 20	167 20									
Re	Republic Supply	Supplies 18 41						18 41				
3/13	W A Rubber Co	" 209 29						209 29				
3/17	J L Bales	Expense 11 35				11 35						
3/13	L B Iron Works	Supplies 34 20						34 20				
3/15	S Atkinson	Labor 29 20					29 20					
	Press	Adv. 4 41				4 41						
	M W Owen	Labor 39 95					39 95					
	H H Breazell	" 16 65					16 65					
	Telegram	Adv. 4 41				4 41						
3/14	Industrial Mtg Fin. Corp.	Truck 200 76	200 76									
3/15	John Trouth	Labor 83 00					83 00					
	B Breazell	" 59 95					59 95					
3/15	Kipp Supplies	Supplies 4 40						4 40				
	Ed Crail	Hauling 27 25			27 25							
3/21	Doyle & Reynolds	Legal 95 60		95 60								
	L B Water Dept.	Exp. 1 00				1 00						
	S W Welding & Mch Co.	Supplies 4 62						4 62				
	Hill St. Garage	Repairs 4 40			4 40							
3/24	First Nat'l Bank											
	Crshew Ck vs: Perkins	3 591 25		3 591 25								
	First Natl Bank	Elliott 350 00						350 00				
4/1	J L Bales	Exp. 13 40				13 40						
4/2	B Breazill	Labor 80 00					80 00					
	M Owen	" 81 00					81 00					



		Disbursed by		Legal	Truck Expense		Labor	Supplies	J M Owen	J L Bales	Patents	Notes Payable
		Bank	Equipment		Gas & Oil	Expense	69 95					
	H H Breazell	Labor					69 95					
	H O Bales	Labor					75 00					
	John Trouth	Labor					145 35					
	J M Owen	"					100 00		100 00			
	J L Bales	"					100 00			100 00		
	Shell Co.	Gas & Oil			97 00							
	Associated Tele Co.	Exp.				4 75						
	Carpe Bros	Supplies						5 00				
	Oil Well Supplies Co.	"						3 73				
	Tele Directory Co.	Advertising					3 50					
	So Co Gas Co	Expense					1 47					
	City Nat'l Bank	Truck	306 80	306 80								
	Ed Crail	Hauling	3 00		3 00							
	Crane & Co.	Supplies	1 56					1 56				
	Republic Supply Co.	"	58 73					58 73				
	Kipp Supply Co.	"	40 45					40 45				
	W A Rubber Co.	"	4 90					4 90				
	Jones Hardware	"	4 04					4 04				
	H O Melone Co.	Repair	16 75		16 75							
4/8	Smith & Jones	Mud Tank	146 02	146 02								
	F C Dittman	Expense	5 00			5 00						
4/9	First National	Bond	250 00									
8/10	M E Inskip	Pat., Int. & Roy.	320 67		250 00	20 67					300 00	
4/10	H F Deavers	Supplies	28 39					28 39				
	L B Iron Works	"	54 67					54 67				
	Shell Company	Gas & Oil	50 00		50 00							
	Packard Truck Co.	Hauling	2 50		2 50							
4/14	J M Owen	Labor	350 00						350 00			
	J L Bales	"	350 00							350 00		
4/15	H H Breazell	"	87 50				87 50					
	H O Bales	"	75 00				75 00					
	J M Owen	"	100 00						100 00			
	J L Bales	"	100 00							100 00		
	J L Bales	Expense	15 10			15 10						
4/16	First Nat'l Bank	Truck	168 30	168 30								
4/17	So. Calif. Edison	Expense	6 25			6 25						
	Doyle & Reynolds	Legal	29 00		29 00							
	J M Owen	Repairs	20 00		20 00							
4/18	Kimball Motors	"	11 65		11 65							
	Lacey W & B Works	Supplies	10 25					10 25				
	Lyon Truck Co.	Hauling	54 23		54 23							

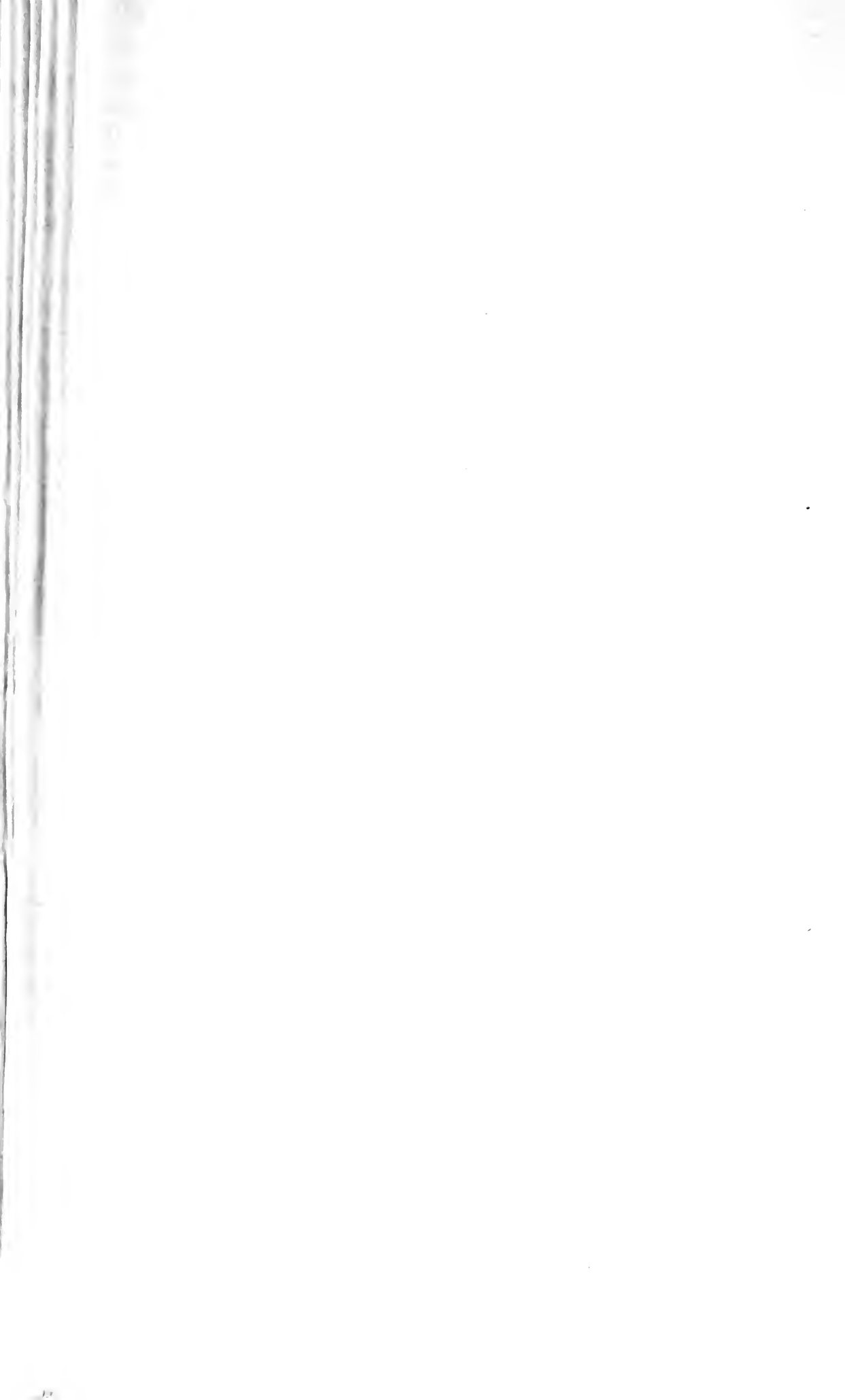


		Disbursed by		Truck Expense								
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owens	J L Bales	Patents	Notes Payable
4/25	Westall & Wallace	Legal		250 00								
4/18	J M Owen	Hose	8 00									
	J L Bales	Exp.	8 90			8 90						
	Shell Company	Gas & Oil	10 88		10 88							
	Citizens National Bank	Truck	308 76									
4/25	L B Water Dept.	Expense	1 00			1 00						
4/30	H O Bales	Labor	75 00				75 00					
	J L Bales	"	100 00							100 00		
	J M Owen	Labor	100 00						100 00			
	H H Breazell	Labor	87 50				87 50					
5/1	Republic Supply Co.	Supplies	8 87					8 87				
	Oil-Well Supply Co.	Supplies	1 65					1 65				
	Greens	Printing	14 25			14 25						
5/3	Associated Tele Co.	Expense	4 70			4 70						
4/25	Worthington Co.	Supplies	19 08					19 08				
5/1	W A Rubber Co.	Supplies	4 99					4 99				
5/3	B & B Welding Co.	Supplies	2 00					2 00				
	L B Telephone Dir.	Expense	3 50			3 50						
	H O Melone Co.	Repairs	3 83		3 83							
	Auto Club	Insurance	266 87			266 87						
5/10	M E Inskip	Pat. Int. & Roy	301 75			1 75					300 00	
4/25	Am Well & Prosp Co.	Supplies	36 62					36 62				
5/16	H O Bales	Labor	75 00				75 00					
	J L Bales	"	100 00							100 00		
	J M Owen	"	100 00						100 00			
5/15	So Calif Edison Co	Expense	6 25			6 25						
5/16	H H Breazell	Labor	87 50				87 50					
5/23	First Nat'l Bank	Printing	20 00			20 00						
6/6	First Nat'l Bank	Truck	169 40		169 40							
5/19	Westall & Wallace	Legal	250 00			250 00						
	Doyle & Reynolds	"	9 10			9 10						
5/21	J L Bales	Expense	8 95			8 95						
5/23	L B Water Dept.	"	1 00			1 00						
5/28	O G Miller	"	125 00			125 00						
	John M Fulton	Legal	75 00			75 00						
	Westall & Wallace	"	250 00			250 00						
5/31	H O Bales	Labor	75 00				75 00					
	J L Bales	"	100 00							100 00		
	H H Breazell	"	87 50				87 50					
	Citizens Nat'l Bank	Truck	310 74		310 74							
	Shell Company	Gas & Oil	30 00				30 00					

		Disbursed by		Truck Expense									
		Bank	Equipment	Legal	Gas & Oil	Expense	Labor	Supplies	J M Owens	J L Bales	Patents	Notes Payable	
	Republic Supply Co.	Supplies						1 62					
	Oil Well "	"						3 75					
	J M Owen	Labor							100 00				
6/6	" "	"							250 00				
	J L Bales	"								250 00			
6/9	Assoc. Tele. Co.	Expense				2 80							
	L B Tele Directory	Expense				3 50							
6/10	M E Inskip	Pat. & Interest				7 17					200 00		
	Sullivan & Co.	Chemical						510 00					
	Crane Company	Supplies						2 70					
6/9	J L Bales	Expense				12 50							
	Westall & Wallace	Legal		200 00									
6/10	Shell Company	Gas & Oil			30 00								
6/11	Kimball Motors Co.	Repairs			152 20								
6/12	First Nat'l Bank	Truck	170 50										
6/14	H H Breazell	Labor					87 50						
	H O Bales	Labor					75 00						
	J M Owen	"							100 00				
	J L Bales	"								100 00			
6/16	First Nat'l Bank	Trip to Louisiana	1505 00	1505 00									
6/16	Westall & Wallace	Legal	150 00	150 00									
6/17	So. Calif. Edison Co.	Expense	6 25			6 25							
6/19	Sullivan & Co.	Chemical	498 15					498 15					
	Westall & Wallace	Legal	174 16	174 16									
	J M Owen	Labor	300 00						300 00				
	J L Bales	"	300 00							300 00			
6/21	A P Michael Narlian	Legal	92 50	92 50									
6/26	Westall & Wallace	Legal	275 00	275 00									
	City Nat'l Bank	Truck	312 70	312 70									
7/1	H H Breazell		87 50				87 50						
	H O Bales		75 00				75 00						
7/1	L B Tele Directory	Advertising	3 50			3 50							
	Shell Company	Gas & Oil	30 00		30 00								
	M E Inskip	Royalty	6 00			6 00							
7/3	H O Bales	Expense	14 55			14 55							
7/7	Associated Tele Co.	Expense	4 80			4 80							
7/1	Hamer Oil W C Co.	Supplies	25 00					25 00					
7/15	J M Owen	Labor	100 00						100 00				
	J L Bales	"	100 00							100 00			
	H H Breazell	"	87 50				87 50						
	H O Bales	"	75 00				75 00						

			Disbursed by		Legal	Truck Expense		Labor	Supplies	J M Owens	J L Bales	Patents	Notes Payable
			Bank	Equipment		Gas & Oil	Expense						
7/16	Shell Co. of Calif.	Gas & Oil	40 88			40 88							
	Republic Supply	Supplies	3 42						3 42				
	So. Calif Edison	Expense	6 25				6 25						
7/28	J L Bales	Labor	135 45								135 45		
	J M Owen	"	135 45							135 45			
8/1	H H Breazall	"	87 50					87 50					
	H O Bales	"	75 00					75 00					
	J M Owen	"	100 00							100 00			
	J L Bales	"	100 00								100 00		
8/4	F D Monckton	Appeal	1000 00		1000 00								
8/6	W A Rubber Co.	Supplies	5 60						5 60				
	L B Telephone Directory	Advertising	3 50				3 50						
8/5	Star Drilling Co.	Supplies	49 40						49 40				
	J L Bales	Expense	16 55				16 55						
	M E Inskip	Royalty	6 00				6 00						
	First Nat'l Bank	Truck	172 22	172 22									
	Sherwin Williams Pt. Co.	Supplies	14 40						14 40				
8/7	H O Bales	Labor	35 00					35 00					
8/8	A P M Narlian	Legal	25 00		25 00								
8/12	Assoc. Tele Co.	Expense	9 45				9 45						
	So: Calif. Edison Co.	Expense	6 25				6 25						
8/15	H H Breazell	Labor	87 50					87 50					
	J M Owen	Expense	4 95				4 95						
	J M Owen	Labor	100 00							100 00			
	J L Bales	Labor	100 00	E							100 00		
	" "	Expense	4 00				4 00						
8/20	J M Owen	Labor	150 00							150 00			
	J L Bales	"	150 00								150 00		
	W A Rubber Co.	Supplies	3 14						3 14				
	Oil Well Supply Co.	Supplies	2 71						2 71				
	Citizens Nat'l Bank	Truck	314 66	314 66									
8/25	J M Owen	Labor	150 00							150 00			
	J L Bales	"	150 00								150 00		
8/20	C M Woods	Supplies	33 75						33 75				
9/1	" "	"	2 00						2 00				
9/3	J M Owens	Labor	100 00							100 00			
	J L Bales	"	100 00								100 00		
9/4	H O Bales	"	15 00					15 00					
9/5	J M Owen	"	100 00							100 00			
	J L Bales	"	100 00								100 00		
9/8	M E Inskip	Royalties	2 00				2 00						







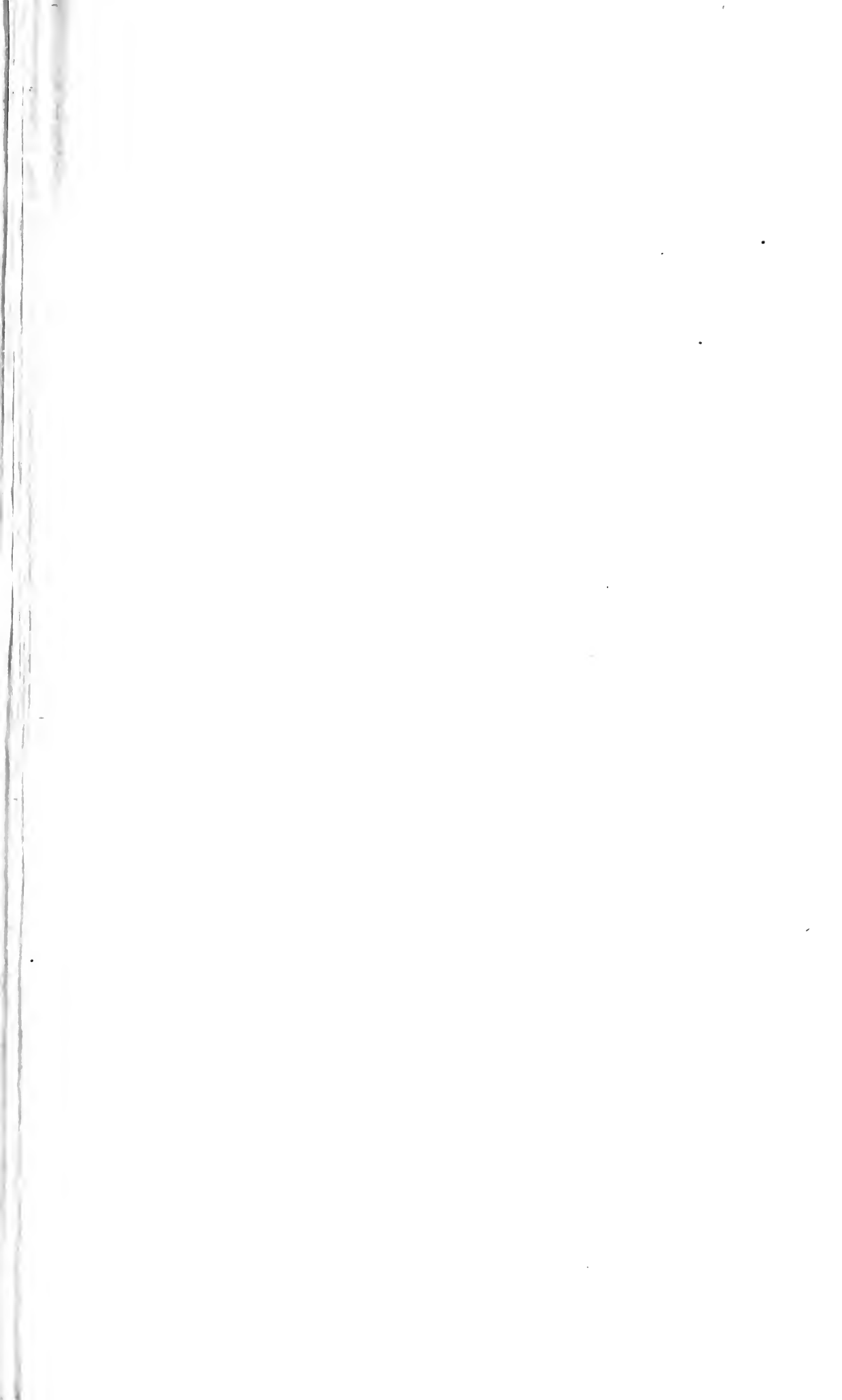
		Legal	Disbursed by		Truck & Expense			Supplies	J. M. Owens	J. L. Bales	Patent	Notes Payable	
			Bank	Equipment	Legal	Gas & Oil	Expense						Labor
5/4	R. S. Zimmerman		3 00		3 00								
9/21	Westall & Wallace	"	100 00		100 00								
6/8	Reynolds & St. Maurn	"	430 25		430 25								
6/9	J. M. Owen L. W. Pierce	"	86 49		86 49								
TOTALS -----													
			113,645 84	29,615 02	12,602 02	2,912 66	4,659 02	13,723 81	19,930 06	11,017 98	11,185 27	5,000 00	3,000 00

SALES
OWEN OIL WELL CEMENTING CO.
January 1st 1923 to Sept. 30th, 1924.

	Well	Cement		Chemical	Casing	Sale Chemical	Plug Cementing	Sales Cement	No Plug Cementing	Sale Plugs
		Used	Plug							
1923										
1/26	York Smullen Drilling Co.	C. D. Beachamp	150	Yes	No	15½			125 00	
1/28	Bellridge Oil Co.		150	Yes	No	12½	250 00			
2/2	Henderson Petroleum Corporation	Rogers #2	75	Yes	No	15½	250 00			
2/7	Keck Syndicate	Keck #3	60	Yes	10	6	35 00	250 00		
2/8	Dobney Oil Co.	#19	70	Yes	10	8¼	35 00	250 00		
2/10	Dobney Oil Co.	#15	500	Yes	41	10	143 50	250 00		
2/12	Fred B Foster	#4	500	Yes	40	8¼	140 00	250 00		
2/12	Keck Syndicate	#2	150	Yes	No	15½		250 00	255 00	
2/14	Hackworth Brummer & Fox	Wilmington Hopkuis #1	100	Yes	No	15½		250 00		
2/15	Consolidated Mutual Oil Co.	#1	150	Yes	No	15½		250 00		
2/16	Fred B Foster	Prospect #1	150	Yes	20	12½	70 00	250 00		
2/17	Orange County Drilling Co.	Tarman Taylor	300	Yes	20	8¼	70 00	250 00		
2/20	Fred B Foster	#3	None	No	25	8¼	87 50			
2/21	Henderson Petroleum Syndicate	Hethroe #1	95	Yes	No	16		250 00		
2/28	Orange County Drilling Co.	Transport	100	Yes	No	15½		250 00		
3/11	Federal Drilling Co.	Light Anchor	500	Yes	60	8¼	210 00	250 00		
3/11	McKeon Drilling Co.	Pan Hellanic	100	Yes	No	12½		250 00		
3/17	Federal Drilling Co.	Anchor Oil Co.	340	Yes	60	8¼	210 00	250 00		
3/19	Five O Drilling Co.	Turner #1	92	Yes	20	15½	70 00	250 00		
3/21	J. K. Tobin							250 00		
3/21	Hackworth & Brunin	Acme #2	100	Yes	No	15½		250 00		
3/31	Bush Voorhies Oil Co.	#9	350	Yes	20	10	70 00	250 00		
4/1	McKeon Drilling Co.	Oceanic #3	500	No	No	2½			250 00	
4/1	Bush Voorhies Oil Co.	#19 Brunecke	335	Yes	20	10	70 00	250 00		
4/3	Farrish Watts & Collins Inc.	Chaney #1	200	Yes	No	12½		250 00		
4/9	White Baehr Petroleum Syndicate	#1 Buster Keaton	300	Yes	20	8¼	70 00	250 00		

1923	Well	Cement Used	Plug	Chemical	Casing	Sale Chemical	Plug Cementing	Sales Cement	No Plug Cementing
4/18	C & F Drilling Co.	Brooks Miller	100	Yes	20	15½	70 00	250 00	
4/18	G H & L Drilling Co.	3 for 1 Royalties #3	100	Yes	No	12½		250 00	
4/19	Sherman Oil Company	Decker #1	500	Yes	20	8¼	70 00	250 00	
4/26	California Signal Co.	Calif. Signal #3	100	Yes	No	15½		250 00	
5/12	Federal Drilling Co.	Anchor #1	325	No	28		100 00		100 00
5/4	Five O Oil Syndicate	Turner #1	100	Yes	20	10	70 00	250 00	
5/14	C C Julian & Co.	#12	200	Yes	No	15½		250 00	
5/15	Federal Drilling Co.	Dome #2	300	Yes	20	8¼	60 00	250 00	
5/15	Bellridge Oil Co.	Britsch	150	Yes	20	15½	60 00	250 00	
5/16	C C Julian Co.	Pico	200	Yes	No	15½		250 00	
5/17	Federal Drilling Co.	E G B #1	80	Yes	20	6¼	60 00	250 00	
5/18	M H Whittier Co.	Butler #1	125	Yes	25	6¼	75 00	250 00	
5/22	F. R. B. Oil Co.	Reiber	200	Yes	No	16		250 00	
5/25	Golaspy Drilling Co.	Big 3 & 1	250	Yes	No	8½		250 00	
5/28	McKeon Drilling Co.	Industrial #2	150	Yes	No	15½		250 00	
5/31	C C Julian Co.	Brunson #2	150	Yes	20	6¼	60 00	250 00	
6/1	Calif. Signal #3	#3	350	Yes	20	8¼	60 00	250 00	
6/2	C C Julian	Carter #8	200	Yes	No	10		250 00	
6/4	Federal Drilling Co.	Lone Star	20	Yes	5	4¾	20 00	250 00	
6/7	California Cooperative Syndicate	#1	325	Yes	No	8¼		250 00	
6/8	Bush Voohries Oil Co.	Barnes #1	40	Yes	10	6¼	30 00	250 00	
6/11	C C Julian Oil Co.	#5	250	Yes	20	6½	60 00	250 00	
6/15	W R Ramsay	Coffin #1	150	Yes	20	15½	60 00	250 00	
6/17	Hampton & Lambert	#4	250	Yes	No	8¼		250 00	
6/19	U S Royalties Co.	#8	50	Yes	No	15½		250 00	
6/23	Pugh Miller Drilling Co.	Special Oil #2	250	Yes	No	8¼		250 00	
6/24	Foster Gregg Oil Syndicate	Local #1	125	Yes	No	12½		250 00	
6/25	J Golaspy	Merchants Oil Syndicate	100	Yes	15	6¼	60 00	250 00	
6/26	Federal Drilling Co.	Woolner #1	400	Yes	27½	8¼	110 00	250 00	
6/27	Federal Drilling Co.	Osborne #1	100	Yes	20	6¼	60 00	250 00	
6/27	McKeon Drilling Co.	Breske #4	250	Yes	No	8¼		250 00	
6/29	U S Royalties	#9	100	Yes	No	15½		250 00	
6/27	Davis & McMillan								
6/21	Lambert Oil Co.	#3	100	Yes	No	15½		250 00	
7/1	Klausen & Co.	#2	100	Yes	20	15½	60 00	250 00	
7/4	M & H Oil Co.	#1	350	Yes	No	8¼		250 00	
7/8	Cook Drilling Co.	Pacific States #1	80	Yes	No	15½		250 00	
7/10	Cecelia Petroleum Corp	#1	100	Yes	5	6¼	25 00	250 00	

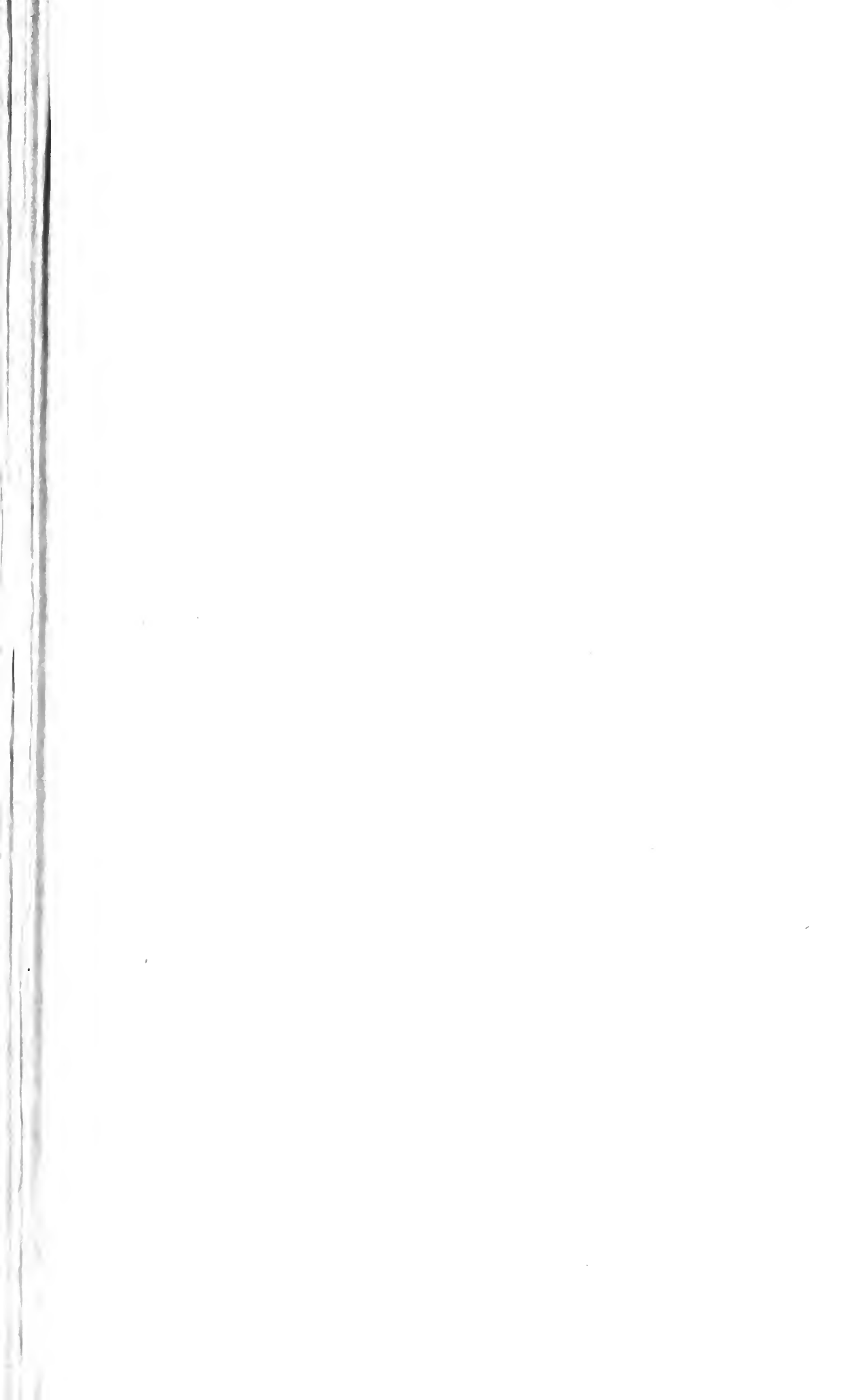
1923	Well	Cement Used	Plug	Chemical	Casing	Sale Chemical	Plug Cementing	Sales Cement	No Plug Cementing
7/10	Bush Voochries Oil Co.	Breske #2	350	Yes	20	10	60 00	250 00	
7/11	Cash Sale				1		5 00		
7/11	U S Royalties	#2	200	Yes	No	12½		250 00	
7/12	Elliott Extension Oil Co.	#1	200	Yes	No	12½		250 00	
7/14	Calif. Well Drilling Co.	#1 Killpatrick #2	100	Yes	No	15½		250 00	
7/14	McKeon Drilling Co.	Crescent #1	250	Yes	20	11	60 00	250 00	
7/15	McKeon Drilling Co.	Mourovia #1	100	Yes	20	6¼	60 00	250 00	
7/17	Farish, Watts & Collins		397	Yes	30	8¼	90 00	250 00	
7/19	Texas Holding Corporation	Miller Garth #3	300	Yes	60	8½	160 00	250 00	
7/20	Davis & McMillan								28 50
7/21	McKeon Drilling Co.	Breske #4	50	Yes	10	6¼	30 00	250 00	
7/21	C C Julian	Baker #6	300	Yes	30	8¼	90 00	250 00	
7/21	Superior Oil Co.	F 1	100	Yes	10	15½	30 00	250 00	
7/22	McKeon Drilling Co.	Breske #6	150	Yes	No	15½		250 00	
7/22	McKeon Drilling Co.	Crescent	250	Yes	20	8¼	60 00	250 00	
7/22	McKeon Drilling Co.	Hamilton #7	50	Yes	10	6¼	30 00	250 00	
7/22	C C Julian	Brunson #12	300	Yes	30	8¼	90 00	250 00	
7/23	McKeon Drilling Co.	Western Seaboard #2	75	Yes	20	8¼	60 00	250 00	
7/23	McKeon Drilling Co.	Pan Helonic #1	400	Yes	20	8¼	60 00	250 00	
7/23	W R Ramsey	#2 B	150	Yes	15	15½	50 00	250 00	
7/23	Superior Oil Co.	Miller #2	130	Yes	10	15½	30 00	250 00	
7/24	Ramsey Oil Co.	2A	150	Yes	20	15½	60 00	250 00	
7/28	Bush Voochries Oil Co.	Barnes #2	350	Yes	20	10	60 00	250 00	
7/28	Federal Drilling Co.	Butler #2	200	Yes	40	12½	110 00	250 00	
7/28	Federal U S Royalties	McIntyre #3	200	Yes	No	6½		250 00	
7/28	Pugh Miller Drilling Co.	Bay Hills #2	70	Yes	5	6¼	30 00	250 00	
7/29	C C Julian	Mathews #5	10	Yes	5	4½	20 00	250 00	
7/8	California Cooperative Syndicate	#1	30	No	5	2½	25 00		250 00
7/22	Bush Voochries Oil Co.	Buss #2	70	No	15	4½	50 00		250 00
7/30	Fremont Oil Syndicate						17 50		
8/2	U S Royalties	McIntyre #2	300	Yes	No	8¼		250 00	
8/3	McKeon Drilling Co.	Peterson #2	150	Yes	No	15½		250 00	
8/4	W R Ramsey	Coffin #1	350	Yes	30	8¼	90 00	250 00	
8/5	Painted Hills Oil Co.	Telegram #4	15	No	5	4	25 00		250 00
8/6	National Oil Co.	#1	300	Yes	20	8¼	60 00	250 00	
8/6	U S Royalties	#7	50	Yes	No	15½		250 00	
8/7	Cook Drilling Co.	P S #1	100	Yes	No	10		250 00	
8/7	McKeon Drilling Co.	Cost State #2	150	Yes	15	6¼	45 00	250 00	



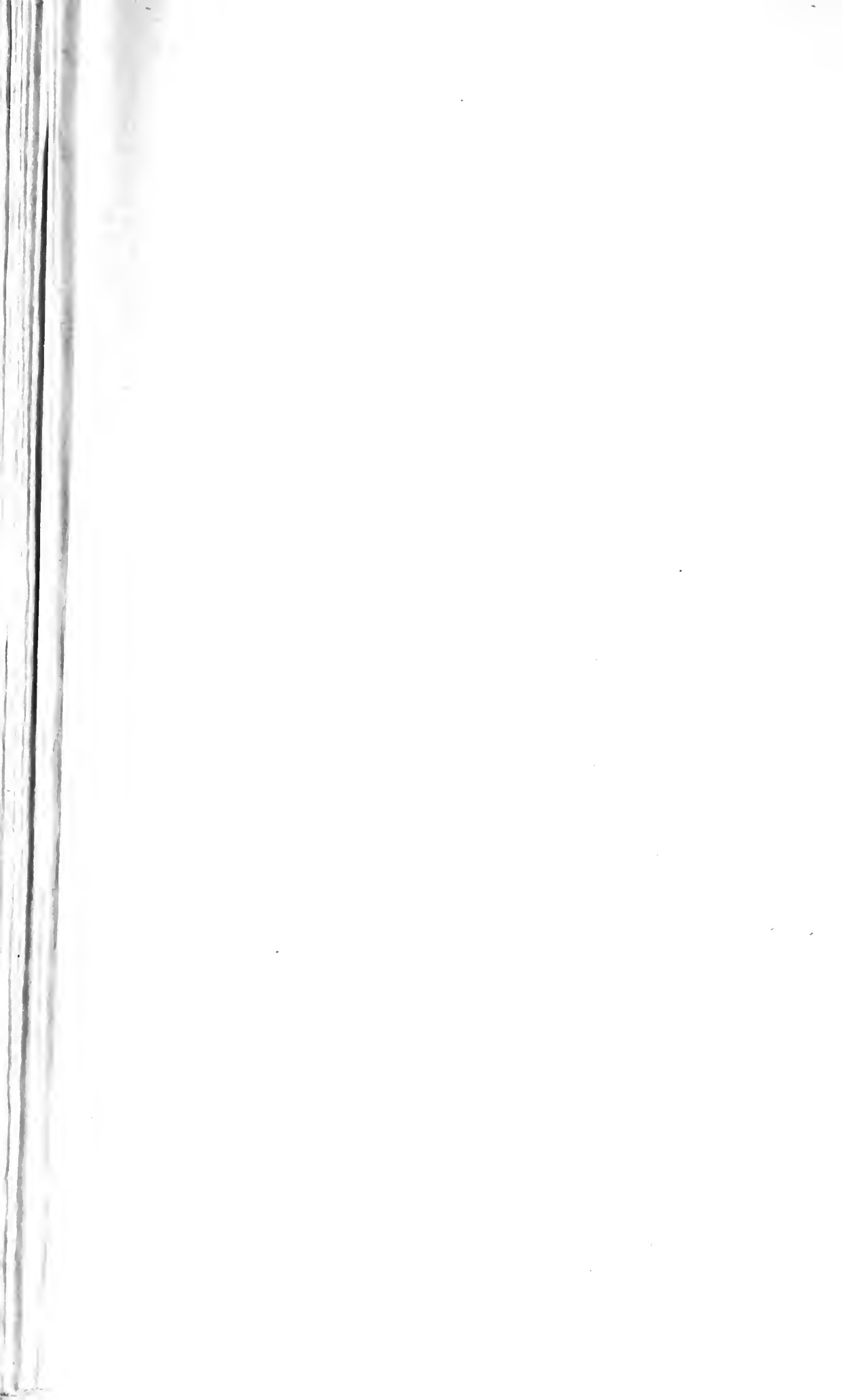
1923	Well	Cement		Chemical	Casing	Sale Chemical	Plug Cementing	Sales Cement	No Plug Cementing	Sale Plugs
		Used	Plug							
8/8	Stillwell Drilling Co.	Downey Syndicate #1	50	Yes	10	15½	30 00	250 00		
8/10	H & N Oil Co.	H N #9	50	Yes	10	6¼	42 50	250 00		
8/10	U S Royalties	#9	300	Yes	No	10		250 00		
8/14	Elliott Extension Oil Co.	#1	200	Yes	40	8¼	110 00	250 00		
8/15	Farish Watts & Collins	#1	None	None	None				37 50	
8/15	McKeon Drilling Co.	Industrial #12	100	Yes	10	8¼	30 00	250 00		
8/16	Oakridge Oil Co.				30		90 00	250 00		
8/16	Julian Petroleum Corp.	Texacal	100	Yes	No	15½		250 00		
8/16	Federal Drilling Co.	Lightburn	150	Yes	30	8¼	90 00	250 00		
8/17	McKeon Drilling Co.	Breske #5	160	Yes	No	15½		250 00		
8/17	Superior Oil Co.	Osburne #1	150	Yes	10	15½	35 00	250 00		
8/17	Southern Midway	#1	100	Yes	20	15½	60 00	250 00		
8/18	Julian Oil Corporation	Pico	200	Yes	20	10	60 00	250 00		
8/19	Ramsey Oil Co.	A2	250	Yes	25	11	75 00	250 00		
8/20	Pugh Miller Drilling Co.	Special Delivery #1	50	Yes	10	6¼	30 00	250 00		
8/20	Cheney Oil Syndicate	#1	20	No	No	10			300 00	
8/21	Bay Hills Oil & Land Co.	Special Delivery #3	350	Yes	10	15½	30 00	250 00		
8/21	Federal Drilling Co.	Woolner #1	80	Yes	10	6¼	30 00	250 00		
8/23	U S Royalties	#2	100	Yes	No	6¼		250 00		
8/23	McKeon Drilling Co.	Oceanic #3	250	Yes	10	8¼	30 00	250 00		
8/24	U S Royalties	#9	150	Yes	No	10		250 00		
8/26	Golaspy Drilling Co.	Hall Weber #2	250	Yes	20	8¼	60 00	250 00		
8/28	California Signal #3	#3	100	Yes	20	4¾	60 00	250 00		
8/28	Fremont Oil Corporation				2		6 25			
8/29	Cheney Oil Syndicate	Cheney #1	Dump Baler Job	No		10			300 00	
8/30	C C Julian Corp.	Baker #7	300	Yes	20	8¼	60 00	250 00		
9/1	Calif Well Drilling Co.	Cal Coop Syndicate #2	75	Yes	15	6¼	45 00	250 00		
9/3	Pugh Miller	Bay Hills #4	300	Yes	10	15½	30 00	250 00		
9/5	Federal Drilling Co.	Garner 1	200	Yes	20	12½	60 00	250 00		
9/6	Ramsey Oil Co.	2 A	88	No	30	Tubing	70 00		250 00	
9/7	U S Royalties	#7	300	Yes	No	10		250 00		
9/8	Elliott Extension Oil Co.	#1	92	Yes	20	6¼	60 00	250 00		
9/9	Doyle & Cline Oil Co.	Coon #2	100	Yes	10	15½	30 00	250 00		
9/5	Calif. Drilling Co.	C R J #1	200	Yes	No	15½		250 00		
9/11	Klausen & Co	Top Notch #1	300	Yes	25	8¼	75 00	250 00		
9/12	C C Julian Co.	Brunson #12	75	Yes	15	6¼	45 00	250 00		
9/12	Centinel Oil Co.	Joughlin #1	150	Yes	20	15½	60 00	250 00		
9/12	R E Ibbetson Oil Co.	Mally Ibbetson #1	40	No	10	Tubing	30 00		250 00	
9/12	Mack Oil Co.	Mack #1	50	Yes	10	4¾	30 00	250 00		
9/9	Federal Drilling Co.	Garner #1	56	No	10	12½	30 00		100 00	
9/12	H N Oil Co						12 50			
9/13	Ramsey Oil Co.	2 A	150	Yes	30	11	90 00	250 00		

1923	Well	Cement Used	Plug	Chemical	Casing	Sale Chemical	Plug Cementing	Sale Cement	No Plug Cementing
9/15	Oakridge Oil Co.	200	Yes	40	6¼	110 00	250 00		
9/14	Calif. Drilling Co.	600	Yes	None	8¼		250 00		
9/17	Calif. Drilling Co.	300	Yes	None	15½		250 00		
9/19	Julian Petroleum Corp.	300	Yes	20	10	60 00	250 00		
9/19	Ramsey Oil Company	50	No	10	Tubing	30 00			250 00
9/22	Pugh Miller		No	No	Circulating				45 00
9/25	North American Oil Cans	200	Yes	No	15½		250 00		
9/26	Pugh Miller Drilling Co.	250	Yes	No	8¼		250 00		
9/27	Bush Voochries Oil Co.			2½		12 50			
9/27	Fred Ruthven	100	Yes	10	6¼	30 00	250 00		
9/28	Federal Drilling Co.	200	Yes	20	12½	60 00	250 00		
9/29	Pugh Miller Drilling Co.	250	Yes	No	8½		250 00		
9/30	North American Cans	150	Yes	No	15½		250 00		
9/2	McKeon Drilling Co.	200	No	40	Drill Pipe	110 00			250 00
9/2	McKeon Drilling Co.	50	No	10	24	30 00			250 00
9/7	McKeon Drilling Co.	200	Yes	20	8¼	60 00	250 00		
9/8	McKeon Drilling Co.	100	No	No	Drill Pipe				250 00
9/8	McKeon Drilling Co.	50	No	10	Drill Pipe	30 00			250 00
9/12	McKeon Drilling Co.	150	Yes	20	15½	60 00	250 00		
9/25	McKeon Drilling Co.	140	No	30	Drill Pipe	90 00			250 00
9/26	McKeon Drilling Co.	100	Yes	20	4¾	60 00	250 00		
9/27	McKeon Drilling Co.	250	Yes	45	12½	135 00	250 00		
9/22	Doyle Cline			2½		12 50			
9/19	McKeon Drilling Co.			2½		12 50			
9/15	Pugh Miller Drilling Co.			No					82 50
9/14	Pugh Miller Drilling Co.			No					45 00
9/16	Bush Voochries Oil Co.			2½		12 50			
10/1	Federal Drilling Co.	175	No	40	12½	110 00			100 00
10/2	So. Midway Oil Co.	500	Yes	20	10	60 00	250 00		
10/3	Bay Hills Oil & Land Co.	250	Yes	10	8¼	30 00	250 00		
10/4	McKeon Drilling Co.	250	Yes	20	8¼	60 00	250 00		
10/5	U. S. Royalties	150	Yes	No	15½		250 00		
10/5	C C Julian	20	Yes	5	4¼	15 00	250 00		
10/6	Julian Petroleum Corporation	200	Yes	20	15½	60 00	250 00		
10/6	Consolidated Mutual Oil Co.	200	Yes	No	15½		250 00		
10/7	H & N Petroleum Corp.	130	Yes	30	4¾	90 00	250 00		
10/8	Pugh Miller Drilling Co.	No	No	No					93 75
10/8	Oregon Calif. Oil Syndicate	60	Yes	No	8¼		250 00		

						Exhibit 7.				
		Cement	Plug	Chemical	Casing	Sale	Plug	Sale	No Plug	Sale
		Used				Chemical	Cementing	Cement	Cementing	Plugs
1923		Well								
10/9	Bell Ridge Oil Co.	White #1	150	Yes	30	15½	90 00	250 00		
10/10	Federal Drilling Co.	Lighburn #1	139	Yes	40	4¾	48 75	250 00		
10/10	McKeon Drilling Co.	Breske #5	250	Yes	20	8¾	60 00	250 00		
10/12	Calif. Drilling Co.	Bonded Syndicate #1	200	Yes	No	12½		250 00		
10/12	U S Royalties	#11	75	No.	No	16			250 00	
10/12	Doyle Cline Oil Co.	#2	250	Yes	45	11	140 00	250 00		
10/14	Consolidated Mutual Oil Co.	Oakley #1	200	Yes	No	15½		250 00		
10/15	California Drilling Co.	L B Petroleum Syndicate #1	450	Yes	No	8¾		250 00		
10/15	McKeon Drilling Co.	May Richards #1	250	No	45	12¾	135 00		250 00	
10/16	Consolidated Mutual Oil Co.	#4	200	Yes	No	15½		250 00		
10/16	Federal Drilling Co.	Garner #1	400	Yes	70	8¾	210 00	250 00		
10/18	C C Julian	Brunson #12	8	Yes	No	4¾		250 00		
10/19	McKeon Drilling Co.	Peterson #2	100	Yes	20	6¾	60 00	250 00		
10/22	Bush Drilling Co.	Buss #1	100	Yes	No	15½		250 00		
10/22	Federal Drilling Co.	Hoyck #1	100	Yes	20	12¾	60 00	250 00		
10/23	U S Royalties	#18	100	Yes	No	15½		250 00		
10/26	Cheney Oil Co.	Circulating								75 00
10/26	Empire Drilling Co.	Nugent #1	300	Yes	No	10		250 00		
10/26	Rogers & Edwards	Northwestern Div Co. #1	300	Yes	20	15½	60 00	250 00		
10/26	G S & M Drilling Co.	Black Gold #1	400	Yes	35	8½	110 00	250 00		
10/28	Universal Cans Oil Co.	Moore #2	100	Yes	10	15½	30 00	250 00		
10/29	Pugh Miller Drilling Co.	Circulating								37 50
10/30	Ring Petroleum Corp	#1	75	Yes	No	15½		250 00		
10/30	C C Julian Petroleum Co.	Miller #3	100	Yes	5	15½	150 00	250 00		
10/31	Pugh Miller Drilling Co.	Big Bear #1	300	Yes	No			250 00		
10/10	California Signal	Plug								25 00
11/5	Rogers & Edwards	Circulating								37 50
11/1	Julian Petroleum Corporation	#11	125	Yes	10	6¼	30 00	250 00		
11/1	Universal Cans Oil Co.	Moore #1	300	Yes	No	8¾		250 00		
11/1	Cook Drilling Co.	#1	300	Yes	30	8¾	90 00	250 00		
11/2	California Well Drilling Co.	Lomita Petroleum #1	100	Yes	No	15½		250 00		
11/2	Federal Drilling Co.	Heyman #1	450	Yes	76	8¾	235 00	250 00		
11/2	Keefe Risdner Oil Co.	Carter #1	100	Yes	10	15¾	30 00	250 00		
11/3	Balan McNece	#1	400	Yes	20	8¾	60 00	250 00		
11/4	U S Royalties	Hub #15	100	Yes	No	16		250 00		
11/4	Bush Drilling Co.	Security #2 Well 1	50	Yes	No	Open Hole			250 00	
11/4	Groupe #16	Transport 4	50	No	10	3	30 00	250 00		
11/5	R E Ibbetson	#2	50	Yes	10	10	30 00		250 00	



		Cement				Sale	Plug	Sale	Exhibit 7.	
Well		Used	Plug	Chemical	Casing	Chemical	Cementing	Demont	No Plug	Sale
									Cementing	Plugs
1923										
11/6	Universal Cans Oil Co.	#5	100	Yes	10	15½	30 00	250 00		
11/8	Bush Vooeries	Barnes #2	125	No	5	6¼	15 00		250 00	
11/8	Fisher Gregg Co.	#1	100	Yes	10	12½	30 00	250 00		
11/10	Bush Vooeries			No	2½		12 50			
11/8	Universal Can Oil Co.	#5	100	Yes	10	15½	30 00	250 00		
11/8	Star Petroleum Corp.	B & R #1	100	Yes	No	12½		250 00		
11/10	C C Julian	Cook #2	100	Yes	10	15½	30 00	250 00		
11/10	Universal Cans Oil Co.	Moore #6	100	Yes	10	15½	30 00	250 00		
11/11	Sherman Oil Co.	#1	150	Yes	10	15½	30 00	250 00		
11/11	Bush Drilling Co.	Abercombie #1	55	Yes	10	Drill Pipe 8¼	30 00		250 00	
11/18	U S Royalties	#10	300	Yes	No	10			250 00	
11/13	C C Julian	Bell Johnson #4	100	Yes	10	15½	30 00	250 00		
11/14	H. Freacher	Cash Sale		No	1		2 50			
11/14	U S Royalties	#16	100	Yes	No	16		250 00		
11/16	McKeon Drilling Co.	Cash Sale		No	2½		12 50			
11/16	Speed & Service Truck Co.	" "		No	1		2 50			
11/16	Fremont Oil Corporation	" "		No	2½		12 50			
11/16	Bush Drilling Corp.	McDonald #2	250	Yes	10	12½	30 00	250 00		
11/16	C C Julian Petroleum Corp.	Pico	380	Yes	70	8¼	210 00	250 00		
11/17	Universal Cans Oil Co.	#4	100	Yes	10	15½	30 00	250 00		
11/18	Consolidated Mutual Oil Co.	#3	400	Yes	No	10		250 00		
11/18	McKeon Drilling Co.	Cash Sale		No	2½		12 50			
11/18	A L Cheney	" "		No	2½		12 50			
11/18	Federal Drilling Co.	Higman #2	200	Yes	20	12½	60 00	250 00		
11/14	H C S Oil Co.	#1	50	Yes	No	12½		250 00		
11/19	C C Julian	Texasal #3	10	Yes	5	6¼	10 00	250 00		
11/19	Bush Drilling Co.	McDonald #1	300	Yes	64	8¼	160 00	250 00		
11/19	Consolidated Mutual	#1	400	Yes	No	10		250 00		
11/19	Universal Cans Oil Co.	Jones #1	100	Yes	10	15½	30 00	250 00		
11/20	Doyle Cline Oil Co.	#2	250	Yes	54	8¼	135 00	250 00		
11/20	Federal Drilling Co.	Hoyek #1	400	Yes	70	8¼	210 00	250 00		
11/20	U S Royalties	#7	250	Yes	No	6¾		250 00		
11/2	H & N Oil Co.	Cash Sale			1		2 50			
11/21	Sentinel Oil Co.	Goughn #1	450	Yes	34	10	85 00	250 00		
11/21	McKeon Drilling Co.	Mourovio #2	150	Yes	20	11	60 00	250 00		
11/21	So. Calif. Drilling Co.	Hugh #1	500	Yes	No	8¼		250 00		
11/21	U S Royalties	#10	300	Yes	No	10		250 00		
11/21	International Drilling Co.	McCormick #1	100	Yes	5	15½	15 00	250 00		
11/23	Bolan & McNeece	#1	150	No	34	8¼	85 00		250 00	
11/22	Bellfridge Oil Co.	Emma White #1	300	Yes	28½	8¼	71 25	250 00		
11/25	White Star Refining Co.	Whitney #1	450	Yes	No	10		250 00		



			Cement				Sale	Plug	Sales	No Plug	Exhibit 7.
Well			Used	Plug	Chemical	Cashing	Chemical	Cementing	Cement	Cementing	Sale
1923											
12/14	Star Petroleum Co.	B & R #1	350	Yes	15	8¼	45 00	250 00			
12/13	Universal Cans Oil Co.	Moore #6	300	Yes	20	8¼	60 00	250 00			
12/14	Federal Drilling Co.	Heyman #2	400	Yes	52½	8¼	130 00	250 00			
12/14	Keystone Oil Syndicate	Keystone #1	330	Yes	55	8¼	165 00	250 00			
12/15	Elliott Exit Oil Co.	#1	200	Yes	40	10	105 00	250 00			
12/15	Universal Cans Oil Co.	Moore #8	100	Yes	10	15½	30 00	250 00			
12/16	Julian Petroleum Corp.	Miller #3	300	Yes	20	10	60 00	250 00			
12/17	Bartholomae Oil Corp.	#4	450	Yes	20	8¼	60 00	250 00			
12/18	Bush & Voochries	#1	250	Yes	20	8¼	60 00	250 00			
12/20	International Drill Eng Co.	Wernich #1	350	Yes	20	8¼	60 00	250 00			
12/20	Hub Oil Co.	Beck #2	250	Yes	20	6¼	60 00	250 00			
	Hub Oil Co.	Hakler #1	300	Yes	20	8¼	60 00	250 00			
	Cook Drilling Co.	#2	300	Yes	20	6¼	60 00	250 00			
12/21	Pugh Miller	Beaver State #1	250	Yes	20	8¼	60 00	250 00			
12/21	Cans Mutual Oil Co.	Oakley #1	400	Yes	No	10		250 00			
12/22	Universal Cans Oil Co.	Jones #1	300	Yes	No	8¼		250 00			
12/22	Universal Cans Oil Co.	Moore #4	300	Yes	20	8¼	60 00	250 00			
12/22	A G Bartlett	M K S #1	350	Yes	No	8¼		250 00			
12/23	Doruth Oil & Investment Co.	#1 Doruth	100	Yes	20	12½	60 00	250 00			
12/23	R E Ibbetson Oil Co.	Maltby #2	75	No	15	Liner 6¼	45 00			250 00	
12/24	Hub Oil Co.	C & B #1	20	Yes	5	8¼	15 00	250 00			
						Dump					
	California Drilling Co.	L B Petroleum Syndicate	16	No	5	hailer 8¼	15 00			250 00	
12/26	Pugh Miller Dr Co.	Big Bear #1	50	Yes	10	4½	30 00	250 00			
12/27	Sherman Oil Co.	#1	300	Yes	20	10	60 00	250 00			
12/25	Fremont Oil Syndicate			No	7	Cash Sale	17 50				
12/28	Meserve Knight & Moran	#1	85	Yes	15	6¼	45 00	250 00			
12/29	Universal Cans Oil Co.	Moore #7	300	Yes	20	8¼	60 00	250 00			
12/29	Julian Petroleum Corp.	Johnson #4	300	Yes	20	10	60 00	250 00			
12/29	" " "	Cook & 1	300	Yes	20	10	60 00	250 00			
12/30	Calif. Drilling Corp.	Black Diamond #1	300	Yes	20	8¼	60 00	250 00			
	Bush Drill Co.	Sec. Oil Syndicate #2	100	Yes	20	Wet no charge	60 00				
12/14	Chemical						12 50				
12/22	R E Ibbetson					Circulating				165 00	
1924											
1/7	Fremont Oil Corp.	Cash Sale					46 20				
1/11	Cash Sale	Cement								1 75	
1/25	Fremont Oil Syndicate						15 00				
1/17	H Fisher Oil Co.						11 25				
1/15	Bush Voochries Oil Co.									62 50	

Exhibit 7.

1924			Cement			Sale	Plug	Sales	No Plug	Sale	
			Used	Plug	Chemical	Casing	Chemical	Cementing	Cement	Cementing	Plugs
1/6	Bush Dr Co.	Beaver State #2	300	Yes	58	8¼	145 00	250 00			
1/5	Meserve Knight & Fife						71 25				
1/4	Bush Voochries Oil Co.						17 50				
1/1	Empire Drilling Co.	Arline #1	345	Yes	No	8¼		250 00			
1/1	McDonald Corporation	McDonald #2	300	Yes	60	8¼	145 00	250 00			
1/2	Ring Petroleum Corporation	#2	75	Yes	15	15½	45 00	250 00			
1/1	McDonald Corporation	McDonald #1	100	Yes	20	12½	60 00	250 00			
1/3	Burbank Oil Corporation	Keitner #1	600	Yes	no	8¼		250 00			
1/4	Keystone Oil Company	#1	16	No	8	Dump Bailor	20 00			250 00	
1/5	May Richards Oil Company	Hope Oil Co. #1	125	Yes	20	8¼	60 00	250 00			
1/5	Liberty Oil Company	Optic #1	35	No	10	Drill Pipe	3 00			250 00	
1/6	Hub Oil Company	C B #2	500	Yes	49	8¼	122 00	250 00			
1/7	Pugh Miller Drilling Co.			No			60 00			250 00	
1/8	Native Petroleum Corp.	Bailey #1	100	No	20	12½	60 00			250 00	
1/9	R E Ibbetson Oil Co.	Malthy #2	120	No	25	6¼	75 00			250 00	
1/10	Sentinel Oil Co.	Joughlin #2	200	Yes	20	12½	60 00	250 00			
1/11	McKeon Drilling Co.	Lyman #1	250	Yes	30	10	60 00	250 00			
1/24	International Drilling & Eng. Co.	Wenrich #2	75	Yes	No	15½		250 00			
1/11	International Drilling & Eng. Co.	West Coast #1	50	No	No		Drill Pipe			250 00	
1/11	California Drilling Co.	Bonded #1	325	Yes	30	6¼	60 00	250 00			
1/11	Southland Petroleum Corp.	#5	100	Yes	No	15½		250 00			
1/12	Kussey & Bailes	Rhodes #1	350	Yes	30	8¼	60 00	250 00			
1/12	Universal Cans Oil Co.	Moore #8	300	Yes	30	8¼	60 00	250 00			
1/12	James F. Mighth Oil Co.	#1	300	Yes	30	8¼	60 00	250 00			
1/13	Pugh Miller Drilling Co.	Pentagon #1	25	No	No	Dump Bailor				200 00	
1/15	Bush Voochries Oil Co.	Schiber #1	40	Yes	30	12½	60 00	250 00			
1/16	M H Whittier Co.	Whittier #1	20	Yes	6	4½	12 00	250 00			
1/17	A J Graham	#1	300	Yes	No	8¼		250 00			
1/18	Elliott Cans Oil Co.	Clark #1	350	Yes	82½	6¼	165 00	250 00			
1/20	Doruth Oil & Invest Co.	#1	400	Yes	30	8¼	60 00	250 00			
1/23	Universal Cans Oil Co.	Jones #2	100	Yes	15	15½	30 00	250 00			
1/21	United States Royalties Co.	#8	250	Yes	No	6½		250 00			
1/23	Federal Drilling Co.	Woolner #1	400	Yes	92½	8¼	185 00	250 00			
1/24	U S Royalties Co.	#20	175	Yes	22½	12½	45 00	250 00			
1/25	B Geldnir	#1	100	Yes	15	15½	30 00	250 00			
1/24	Empire Drilling Co.	Gladys #2	150	Yes	30	10	60 00	250 00			
1/26	U S Royalties Co.	#22	175	Yes	22½	13	45 00	250 00			
1/28	Doyle Cline Oil Co.	Cooperative #2	50	Yes	15	6¼	30 00	250 00			
1/28	Bush Voochries Oil Co.	Washburn #1	300	Yes	30	10	60 00	250 00			
1/29	Keeffe Resdin Oil Co.	Carls #2	100	Yes	15	15½	30 00	250 00			
1/30	Huh Oil Co.	Stiz #2	300	Yes	30	8¼	82 50	250 00			

1924	Well	Cement				Casing	Sale Chemical	Plug Cementing	Sales Cement	No Plug Cementing	Sale Plugs
		Used	Plug	Chemical							
1/31	Meserve Knight & Fife	#1	20	Yes	4	4¾	12 00	250 00			
2/12	Universal Cans Oil Co.						8 75				
2/9	Bush Voochries Oil Co.								375 00		
2/7	Universal Cans Oil Co.						8 75				
2/5	Bush Voochries Oil Co.						8 75		60 00		
2/4	Bush Voochries Oil Co.						8 75		30 00		
2/2	Bush Voochries Oil Co.						8 75		30 00		
2/1	Empire Drilling Co.	Gladys #2	100	Yes	30	8¼	60 00	250 00			
2/2	Southern Calif. Drilling Co.	Coombs #1	400	Yes	52½	8¼	105 00	250 00			
2/4	Pugh Miller	Bear State #3	75	No	15	15½	45 00		250 00		
2/3	Rogers & Edwards	Equitable #1	200	Yes	No	12½		250 00			
2/7	So. Calif. Dr. Co.	Hadley #1	100	Yes	30	12½	60 00	250 00			
2/8	R E Ibbetson Oil Co.	Smith #1	300	Yes	52½	15½	105 00	250 00			
2/8	U S Royalties Co.	#21	250	Yes	35½	8¼	71 25	250 00			
2/10	Bush Voochries Oil Co.	Schreiber #1	250	Yes	30	8¼	60 00	250 00			
2/12	Sentinal Oil Co.	#3	175	Yes	30	12½	60 00	250 00			
2/14	Ring Petroleum Co.	#2	350	Yes	82½	10	165 00	250 00			
2/14	Fisher Gregg Co.	Cooperative #1	100	Yes	15	12½	30 00	250 00			
2/16	Native Petroleum Co.	Bailey #1	350	Yes	82½	8¼	165 00	250 00			
2/17	Universal Cans Oil Co.	J #2	300	Yes	30	8¼	60 00	250 00			
2/18	Monrovia Oil Co.	Mitchell Corbin #1	150	Yes	30	8¼	60 00	250 00			
2/18	Sentinel Oil Co.	Monrovia #2	150	Yes	41½	8½	82 50	250 00			
2/20	Adolph Rainch Inc.	Stockwich #1	300	Yes	22½	6¼	45 00	250 00			
2/21	Hub Oil Co.	Joughlin #2	300	Yes	41½	8¼	82 50	250 00			
2/24	McKeon Drilling Co.	Lomita #1	200	Yes	30	8¼	60 00	250 00			
2/25	U S Royalties Co.	#20	300	Yes	30	8¼	60 00	250 00			
2/26	International Dr & Eng Co.	Wermich #2	350	Yes	30	10	60 00	250 00			
2/26	So. Slope Oil Co.						7 50				
2/28	B. Gilner	#1	350	Yes	30	8¼	60 00	250 00			
2/29	Santa Slope Oil Co.	Angelus #3	200	Yes	30	6¼	60 00	250 00			
3/1	U S Royalties Co.	#22	300	Yes	30	8¼	60 00	250 00			
3/1	Bush Drilling Co.	Wright #2	300	Yes	72½	6¼	145 00	250 00			
3/2	Jno H McNece	#1	25	No	5	Drill Pipe	15 00		200 00		
3/2	Calif. Drilling Co.	L B #1	60	Yes	18	4¾	36 00	250 00			
3/2	Bush Voochries Oil Co.	Fee #1	250	Yes	30	10	60 00	250 00			
3/3	Bellridge Oil Co.	Britsch #1	500	Yes	45	8¼	105 00	250 00			
3/4	Geo. F. Gitty	#17	300	Yes	20	8¼	40 00	250 00			
3/6	Keefe Resdin Oil Co.	Carl #2	350	Yes	30	8¼	60 00	250 00			
3/10	Bush Voochries OIL Co.	Washburn #1	55	No	11	8¼	33 00		250 00		
3/17	Calif. Dr. Co.	M & M #1	400	No	30	8¼	60 00		250 00		

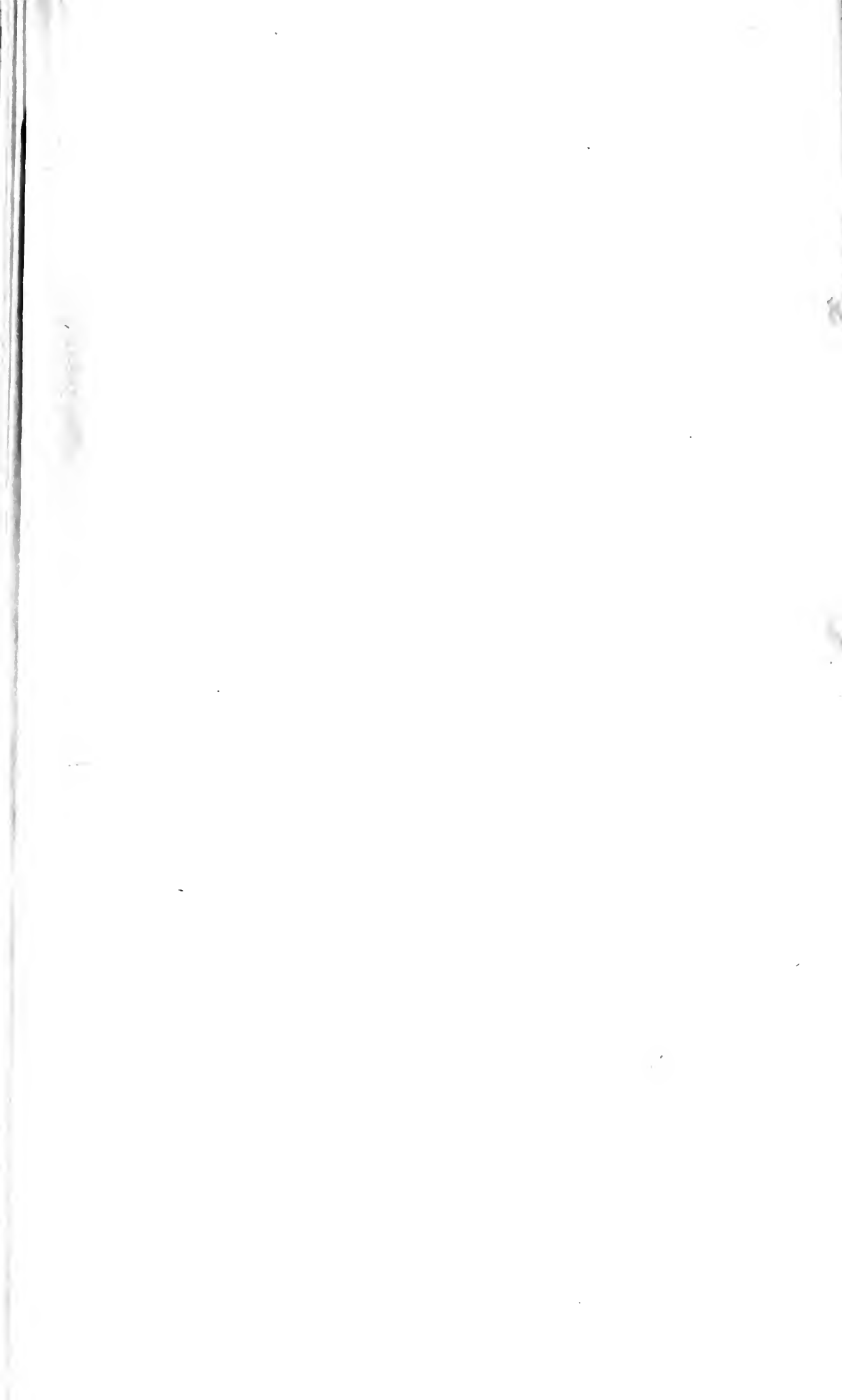
							Exhibit 7				
		Well	Cement	Plug	Chemical	Casing	Sale	Plug	Sales	No Plug	Sale
			Used				Chemical	Cementing	Cement	Cementing	Plugs
1924											
3/19	Mutual Drilling Corp.	Wilshire #1	50	No	No	15½				250 00	
3/19	McKeon Drilling Co.	Mourovio #2	75	No	15	6¼	45 00			250 00	
3/19	West Coast Crude Oil Co.	#2	200	No	30	6¼	60 00			250 00	
3/21	Huntington Downey Oil Co.	#2	150	No	No	8¼				250 00	
3/28	Vosburgh Oil Co.	Angelus #1	150	No	41½	15½	82 50			250 00	
3/11	So. Slope Oil Co.						12 50				
3/23	Calif Dr. Co.										
3/26	Bush Voochries Oil Co.						8 75				28 50
3/29	" " " "						8 75				
3/4	Rogers & Edwards	Equity #1	150	No	30	8¼	60 00				
3/9	" "	#46	125	No	15	12½	30 00				
3/10	" "	Delano #11	200	No	15	15½	30 00				
3/13	" "	C C M O & 55	125	No	15	12½	30 00				
4/8	Bush Voochries Oil Co.						8 75				
4/20	So. Slope Oil Co.						7 50				
4/22	Fremont Oil Syndicate						12 50				
4/6	McKeon Drilling Co.	#3	250	No	30	8¼	60 00			250 00	
4/12	" " "						12 50				
4/21	" " "						12 50				
4/12	R E Ibbetson Oil Co.		350	No	44	8¼	88 50			250 00	
4/4	Bean State & 3	#3	250	No	30	8¼	60 00			250 00	
4/10	Bellridge Oil Co.	Britsch	120	No	No	6¼				250 00	
4/16	Pugh Miller Dr Co.									52 50	
4/28	Pugh Miller Dr Co.									75 00	
4/30	Pugh Miller Dr Co.									75 00	
4/13	Gross Drilling Co.	#17 U S Roy	400	No	30	8¼	60 00			250 00	
4/30	Gross Drilling Co.	#1		No	45		90 00			250 00	
5/11	O M Radeck	#1	25	No	5	4¾	15 00			250 00	
5/15	Oceanic Oil Co.	Ashlniece #3	45	No	15	6¼	30 00			250 00	
5/27	Bruner Marble & Tele Co.	Time Johnson #1	115	No	5	Drill Pipe	15 00			250 00	
5/22	McKeon Drilling Co.	#4	250	No	30	8¼	60 00			250 00	
5/15	McKeon Drilling Co.						12 50				
5/4	R E Ibbetson									33 75	
5/5	" "						30 00				
5/22	" "			No			45 00			250 00	
5/5	Pugh Miller									100 00	
5/16	Adolph Ranush										28 50
5/20	Calif. Dr. Co.										33 25
5/29	Cooper Petroleum Co.										29 45
5/30	So. Slope Oil Co.						25 00				

Gross Sales all Sources
Wells Cemented with Plugs
Wells Cemented without Plugs and Circulating
Plugs Sold

117,082 20
321
82
13

Error corrected by testimony of witness Miller May 29.

[Endorsed]: Filed Dec. 20, 1928. R. S. Zimmerman,
Clerk, by Edmund L. Smith, Deputy Clerk.



[TITLE OF COURT AND CAUSE.]

EXCEPTIONS TO THE SPECIAL MASTER'S
REPORT

Now comes the above mentioned Defendants, and file the following as their exceptions to the Special Master's Report filed December 19, 1928.

I.

Defendants except to the finding in Paragraph III of said Report to the effect that Fifty Dollars (\$50.00) was a reasonable royalty for the use of said process, and that Defendants as said co-partnership or otherwise cemented three hundred twenty-five (325) wells using any process which infringed said Letters Patent.

II.

Defendants except to the failure of the Special Master to find that no amount of reasonable royalty had been established by the evidence, and that judgment should be for nominal damages.

III.

Defendants except to the failure of the Special Master to find that the amount paid by Plaintiff's License in the mid-continent field as a royalty for the use of said process, namely, Twenty-five Dollars (\$25.00) per well was an excessive amount and was consideration only for the name of "Perkins" in connection with oil well cementing, and that this is not an unfair competition case and no exclusive right was shown or was proper to be shown in the name "Perkins" as applied to oil well cementing.

WESTALL AND WALLACE,

By Joseph F Westall
Attorneys for Defendants.

[Endorsed]: Received copy of the within Exceptions this 8th day of January 1929 Lyon & Lyon Henry S Richmond, Attorneys for Plaintiff. Filed Jan 8 1929 R. S. Zimmerman, Clerk By Edmund L. Smith Deputy Clerk

At a stated term, to wit: The JANUARY Term, A. D. 1929 of the District Court of the United States of America, within and for the Southern Division of the Southern District of California, held at the Court Room thereof, in the City of Los Angeles, on Monday the 14th day of January, in the year of our Lord one thousand nine hundred and twenty-nine.

Present:

The Honorable PAUL J. MC CORMICK, District Judge.

Perkins Oil Well Cementing Co.,)	
Plaintiff,)	
)	No. G-114-T Eq.
)	
vs.)	
J. M. Owen and J. L. Boles,)	
Defendants.)	

This cause coming on at this time for confirmation of the Report of the Special Master, Henry S. Richmond, Esq., appearing as counsel for the plaintiff, moves that Exceptions be overruled and that decree be entered confirming said Report; whereupon it is by the Court ordered that Exceptions to the Report of the Special Master herein are disallowed, and that the said Report of the Special Master is hereby confirmed, and that a decree be prepared and entered in accordance therewith.

[TITLE OF COURT AND CAUSE.]

FINAL DECREE

This cause having come on to be heard upon the report of David B. Head, Esq., as Special Master, to whom it was referred to take, state and report an account of damages and profits in accordance with the interlocutory decree herein, which report is dated the 20th day of December, 1928, and also upon exceptions taken to the said report on the part of the defendants, and the said cause having been argued by counsel for the respective parties and due deliberation had thereon,

IT IS ORDERED, ADJUDGED AND DECREED that the said defendants pay to the said plaintiff the sum of Sixteen Thousand Two Hundred and Fifty (\$16,250.00) Dollars which is the amount found by the Special Master as stated in his report above referred to to be due from the defendants to the plaintiff.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the said defendants pay to the said plaintiff the sum of One hundred seventy and 60/100 Dollars (\$170.60), their costs in said suit (to be taxed by the clerk), and that said plaintiff have execution for such costs and for the sums above decreed to be paid to said plaintiff.

Dated: January 17th, 1929.

Paul McCormick

U. S. District Judge

Approved as to form:

Westall & Wallace

Attorneys for Defendants

Docketed 1/17/29

Decree entered and recorded 1/17/29

R S Zimmerman Clerk

By Louis J. Somers Deputy Clerk

[Endorsed]: Filed Jan 17 1929 R. S. Zimmerman,
Clerk By Louis J. Somers Deputy Clerk

[TITLE OF COURT AND CAUSE:]

PETITION FOR APPEAL

To the HONORABLE PAUL J. McCORMICK, United
States District Judge:

The above named defendant, J. M. Owen, feeling aggrieved by the decree rendered and entered in the above entitled cause on the 17th day of January, 1929, does hereby appeal from said decree to the United States Circuit Court of Appeals for the Ninth Circuit, for the reasons set forth in the assignment of errors filed herewith and he prays that his appeal be allowed and that citation be issued as provided by law, and that a transcript of the record, proceedings, and papers and documents upon which said decree was based, duly authenticated be sent to the United States Circuit Court of Appeals for the Ninth Circuit under the Rules of such court in such cases made and provided; and your petitioner further prays that the proper order relating to the security to be required of him be made, as both supersedeas and appeal bond.

WESTALL AND WALLACE,

By Joseph F Westall

Solicitors and of counsel for Defendants.

[Endorsed]: Filed Jan 23 1929 R. S. Zimmerman,
R. S. Zimmerman, Clerk.

[TITLE OF COURT AND CAUSE.]

ASSIGNMENTS OF ERROR

Now comes the above named defendant, J. M. Owen, and files the following assignments of error upon which he will rely upon his prosecution of the appeal in the above-entitled cause, from the final decree entered by this honorable court on the 17th day of January, 1929.

The United States District Court for the Southern Division of the Southern District of California erred in entering the above mentioned final decree and in the proceedings in said cause prior thereto,—

I TO LVIII INCLUSIVE.

Defendant repeats each of the assignments of error set forth in those filed and relied upon in his appeal from the interlocutory decree entered by this court in the above entitled cause on the 23rd day of January, 1928, which assignments were filed with the Clerk of said court February 16, 1928, to the same extent and in the same manner as if the same were here repeated and specifically numbered as in said aforementioned assignments.

LIX.

In overruling the exceptions and each of them to the Master's report on accounting filed in said court, and in confirming said report.

LX.

In ordering, adjudging, and decreeing that said defendants pay to said plaintiff the sum of Sixteen Thousand Two Hundred Fifty (\$16,250.00) Dollars or any part thereof.

LXI.

In ordering, adjudging and decreeing that defendants pay to plaintiff costs of said suit.

LXII.

In failing to find that the amount per well found by the Master to be a proper basis for recovery, namely, Fifty (\$50.00) Dollars per well was excessive.

LXIII.

In failing to find that Twenty-five (\$25.00) Dollars per well would have been a fair amount as a basis for recovery on the assumption that the patent was entitled to be sustained with the scope found in the interlocutory decree.

LXIV.

In not finding and decreeing that plaintiff was entitled to only the recovery of nominal damages.

LXV.

In finding and decreeing that plaintiff was entitled to recovery of costs.

WHEREFORE the appellant prays that said decree be reversed and that said District Court for the Southern District of California, Southern Division, be ordered to enter a decree reversing the decision of the lower court in said cause, and dismissing the Bill of Complaint at the costs of plaintiff.

WESTALL AND WALLACE,

By Joseph F Westall

Attorneys for Appellant.

[Endorsed]: Filed Jan 23 1929 R. S. Zimmerman,
R. S. Zimmerman, Clerk.

[TITLE OF COURT AND CAUSE.]

ORDER ALLOWING APPEAL AND FOR
SUPERSEDEAS

On motion of Joseph F. Westall, Esq., of the firm of WESTALL AND WALLACE, solicitors and of counsel for defendants, it is hereby ordered that an appeal to the United States Circuit Court of Appeals for the Ninth Circuit from the final decree heretofore on the 17th day of January, 1929, filed and entered herein be, and the same is hereby allowed, and that a certified transcript of the record, testimony, exhibits, stipulations, and all proceedings be forthwith transmitted to said United States Circuit Court of Appeals for the Ninth Circuit. It is further ordered that the same shall operate as a supersedeas upon the filing of a bond to be approved by the Court as bond on appeal and supersedeas bond in the penal sum of Seventeen Thousand Eight Hundred Fifty-three (\$17,853.00) Dollars, as provided by law; and the Clerk of this court is hereby directed to stay the issuance of execution on said decree until the further order of this court.

Dated this 23rd day of January, 1929.

Paul J. McCormick
United States District Judge.

[Endorsed]: Filed Jan 23 1929 R. S. Zimmerman,
Clerk By Edmund L. Smith Deputy Clerk

[TITLE OF COURT AND CAUSE.]

BOND ON APPEAL AND FOR SUPER SEDEAS
KNOW ALL MEN BY THESE PRESENTS

That we, J. M. OWEN, as principal and John McKeon, S. L. Pugh, as sureties, are held and firmly bound unto Perkins Oil Well Cementing Company, a corporation, in the full and just sum of Seventeen Thousand Eight Hundred Fifty-three (\$17,853.00) Dollars, to be paid to the said Perkins Oil Well Cementing Company, a corporation, its certain attorneys, executors, administrators or assigns: to which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated this 24th day of January in the year of our Lord One Thousand Nine Hundred and Twenty-nine.

WHEREAS, lately at a District Court of the United States for the Southern District of California, Southern Division in a suit depending in said Court, between Perkins Oil Well Cementing Company, Plaintiff and J. M. Owen and J. L. Bales, Defendants, a decree was rendered against the said Defendants and the said Defendant J. M. Owen having obtained from said Court an order allowing appeal to reverse the said decree in the aforesaid suit, and a citation directed to the said Perkins Oil Well Cementing Company citing and admonishing it to be and appear at a United States Circuit Court of Appeals for the Ninth Circuit, to be holden at San Francisco, in the State of California to answer said appeal.

Now, the condition of the above obligation is such, That if the said J. M. Owen shall prosecute said appeal to effect,

and answer all damages and costs if he fail to make his plea good, then the above obligation to be void; else to remain in full force and virtue.

J M Owen (Seal)
John McKeon (Seal)
S. L. Pugh (Seal)

Acknowledged before me the day and year first above written.

[Seal] Marguerite G. Burrows,
Notary Public in and for the County of Los Angeles,
State of California.

UNITED STATES OF AMERICA)
NORTHERN DISTRICT OF CALIFORNIA) ss.

John McKeon and S. L. Pugh being duly sworn each for himself deposes and says that he is a resident and householder or a freeholder in said District, and is worth the sum of Seventeen Thousand Eight Hundred Fifty-three (\$17,853.00) Dollars, exclusive of property exempt from execution, and over and above all debts and liabilities.

John McKeon
S L Pugh

Subscribed and sworn to before me, this 24th day of January, 1929.

[Seal] Marguerite G. Burrows,
Notary Public in and for the County of Los Angeles,
State of California.

Examined and recommended for approval as provided in Rule 29.

WESTALL AND WALLACE,

By Joseph F Westall

Attorneys for Appellant.

I hereby approve the foregoing bond this 28th day of January, 1929.

Paul J McCormick

United States District Judge.

[Endorsed]: Filed Jan 28 1929 R. S. Zimmerman,
Clerk By L J Cordes Deputy Clerk

[TITLE OF COURT AND CAUSE.]

STIPULATION RE TRANSCRIPT OF RECORD ON
APPEALS AND EXHIBITS.

The above named defendants having taken appeals in this suit to the United States Circuit Court of Appeals for the Ninth Circuit from the Interlocutory Decree entered on the 23rd day of January, 1928, and from the Final Decree entered January 17, 1929.

IT IS HEREBY STIPULATED AND AGREED
SUBJECT TO THE APPROVAL OF THE COURT,

That a single transcript on the two appeals above mentioned shall be prepared, which shall include a true and correct copy of each of the following papers, documents, orders and proceedings entered and on file in the above entitled cause:

1. Bill of Complaint filed June 29, 1923;
2. Answer of defendant filed June 16, 1923;

3. Stipulation for use of uncertified copies of patents filed August 13, 1923;
4. Plaintiff's interrogatories filed August 22, 1923;
5. Order granting Preliminary Injunction, entered August 23, 1923;
6. Opinion on granting Preliminary Injunction, filed August 23, 1923;
7. Defendant's answers to plaintiff's Interrogatories filed October 26, 1923;
8. Notice of motion that defendant be adjudged in contempt and affidavits and authorities in support thereof, filed November 1, 1923;
9. Statement of evidence by defendant re: contempt, filed November 13, 1923;
10. Notice of and plaintiff's rebuttal affidavits, filed December 1, 1923;
11. Notice of and further evidence on contempt hearing filed December 3, 1923;
12. Notice of motion for leave to amend answer and amendment to answer, filed December 21, 1923;
13. Order allowing amendment to answer entered March 4, 1924;
14. Order granting leave to amend answer entered March 23, 1924;
15. Opinion re: contempt filed March 3, 1924;
16. Decree in contempt, entered March 3, 1924;
17. Master's report in contempt proceeding, filed March 15, 1924;
18. Decree supplemental to Decree adjudging defendant in contempt, filed March 22, 1924;
19. Statement of evidence, filed April 4, 1924;

20. Order granting leave to amend answer entered April 23, 1924;

21. Second amendment to answer, filed April 24, 1924;

22. Stipulation and order joining J. L. Bales as a party defendant, filed September 4, 1924;

23. Letters Patent in suit No. 1,011,484;

24. File wrapper and contents of patent in suit No. 1,011,484;

25. Plaintiff's Exhibit 15.

26. Final Decree of June 26, 1925, in case F-70 Equity, Perkins etc. vs. Wigle et al;

27. Report of Special Master Montgomery filed ~~March~~ April 10 1925 in case F-70-Equity, Perkins etc. vs. Wigle, et al;

28. Opinion of Judge McCormick dated January 18, 1928;

29. Order ruling on questions not heretofore ruled on, directing decree for complainant entered January 18, 1928;

30. Interlocutory Decree filed and entered January 23, 1928;

31. Petition for appeal filed February 16, 1928;

32. Assignments of error filed February 16, 1928;

33. Order allowing appeal entered February 16, 1928;

34. Bond on appeal filed February 18, 1928;

35. Notice of appeal, filed February 20, 1928;

36. Citation issued February 16, 1928, with return of service February 20, 1928;

37. Stipulated statements of evidence refiled with this Stipulation. (The first (2 volumes) originally filed or lodged in the Clerk's office March 14, 1928, and the second originally lodged or filed in the Clerk's office Feb-

ruary 27, 1929, both withdrawn for the purpose of corrections, March 19, 1929 and not refiled)

38. Copy of this Stipulation.

39. Stipulation and Order for withdrawal of statements of—evidence to make certain changes and corrections, dated—March 19, 1929;

40. Stipulation and Order withdrawing plaintiff's Exhibits 64, 65 and 66, dated March 18, 1929;

41. Order for accounting before Special Master entered April 30, 1928, (statement of evidence on accounting included above)

42. Defendants' objections to draft report of Special Master and notice of draft report.

43. Master's report on accounting filed December 20, 1928;

44. Defendants' schedules of account.

45. Exceptions of defendant to Special Master's report on accounting filed January 8, 1929;

46. Order disallowing exceptions to Master's report and confirming said report, entered January 14, 1929;

47. Final Decree entered January 17, 1929;

48. Petition for Appeal filed January 23, 1929;

49. Assignments of error filed January 23, 1929;

50. Citation on appeal with return of service filed January 25, 1929;

51. Bond on appeal and for Supersedeas, filed January 28, 1929;

52. A certificate under seal by the clerk of said court stating the cost of the record and by whom paid.

53. The names and addresses of parties to this appeal and their attorneys, Westall & Wallace (Joseph F. Westall and Ernest L. Wallace) 1105—Board of Trade Building.

Los Angeles, California, Solicitors and of counsel for defendants-appellants, J. M. Owen and J. L. Bales, both of Long Beach, California; and Frederick S. Lyon, Leonard S. Lyon and Henry S. Richmond, 708 National City Bank Building, Los Angeles, California, solicitors and of counsel for plaintiff-appellee, Perkins Oil Well Cementing Company, Los Angeles, California.

All of the above shall constitute the transcript of record of said cause on said two appeals, upon which record said appeals shall be heard and determined (except in so far as the immediately foregoing language may be qualified by the second paragraph of Equity Rule 76) which transcript shall be certified by the clerk of this court to the United States Circuit Court of Appeals for the Ninth Circuit.

That the transcript and supplemental transcript of Record on appeal No. 4275, Owen Appellant, vs. Perkins Oil Well Cementing Co. Appellee, being the record on appeal from the Order granting preliminary Injunction in this case may, so far as deemed pertinent by the Court on these appeals, be considered part of the Record hereof and may as such be referred to and quoted by counsel in brief or argument in the appeal proceedings contemplated by this Stipulation.

IT IS FURTHER STIPULATED AND AGREED
SUBJECT TO THE APPROVAL OF THE COURT,

That the following exhibits introduced by both parties shall at least ten days prior to the hearing on these appeals, be transmitted by the Clerk of this court at the expense of defendants to the Clerk of the United States Circuit Court of Appeals for the Ninth Circuit at San Francisco

for use on said appeals. Said exhibits are as follows, to wit:

1. Plaintiff's Exhibit 1. Perkins' lower plug.
2. Plaintiff's Exhibit 2. Perkins' top plug.
3. Plaintiff's Exhibit 6. Owen plug, Exhibit A to the affidavit of Paul Paine.
4. Plaintiff's Exhibit 7. Decree in suit of Halliburton et al vs. Burrus et al. in the United States District Court for the Western District of Oklahoma.
5. Plaintiff's Exhibit 8. Reporter's transcript of proceedings in the suit of Halliburton et al vs. Burrus et al. in the United States District Court for the Western District of Oklahoma.
6. Plaintiff's Exhibit 9. Certified copies, Bill of Complaint, Answer, Transcript of Proceedings at hearing before Judge James C. Wilson, Order granting Injunction, Bond for injunction and final decree in suit entitled Halliburton Oil Well Cementing Co. et al vs. M. E. Inskeep, 195 in Equity in United States District Court for the Northern District of Texas, Amarillo Division.
7. Plaintiff's Exhibit 11. Copies of license contracts with witnesses who testified on behalf of defendants.
8. Plaintiff's Exhibit 12. List of persons, firms and corporations having licenses to use the method of patent in suit in Louisiana and Arkansas.
9. Plaintiff's Exhibit 13. Statement of wells cemented by Plaintiff in 1926.
10. Plaintiff's Exhibit 13-A. Statement of wells cemented by plaintiff in March 1910, to April 30, 1927.
11. Plaintiff's Exhibit 13-B. Statement of wells cemented by plaintiff in California.

12. Plaintiff's Exhibit 13-C. Statement of wells cemented during 1926 by Perkins Oil Well Cementing Company.

13. Plaintiff's Exhibit 13-D. Statement of wells cemented by Halliburton Oil Well Cementing Company in Mid-Continent Field.

14. Plaintiff's Exhibit 14. Inskip Patent No. 1,443,-474.

15. Plaintiff's Exhibit 15. Prior art patents referred to in file wrapper of the Perkins and Double patent in suit.

16. Plaintiff's deposition Exhibit No. 1. Newspaper article in Shreveport "Times".

17. Plaintiff's deposition Exhibit No. 2, Log of well.

18. Plaintiff's deposition No. 3. Transcript of suit in the District Court of Caddo Parish, State of Louisiana, entitled McCann & Harper Drilling Co. vs. The Busch-Everett Co. No. 14,503.

19. Plaintiff's deposition Exhibit. "Map of Caddo Field."

20. Plaintiff's deposition Exhibit. "Specimen of Bird Field Reports."

21. Plaintiff's deposition Exhibit. "Bird Plat Book."

22. Plaintiff's deposition Exhibit. "Newspaper article produced by Bird."

23. Defendants' Exhibit "A". Letter from Halliburton to Westall and Wallace dated June 20, 1922.

24. Defendants' Exhibit E. Model of Inskip Plug.

IT IS FURTHER STIPULATED AND AGREED SUBJECT TO THE APPROVAL OF THE COURT,

That the proper and true initials of the defendant Bales are J. L.; that in numerous of the documents in the record the initials of the defendant Bales have been mistakenly and inadvertently given as "H. O." In order to correct the record IT IS STIPULATED BY AND BETWEEN THE PARTIES HERETO that wherever the name "H. O. Bales" appears, as defendant, J. L. Bales is the person referred to and named, and that wherever required all proceedings herein shall be deemed corrected to specify J. L. Bales as defendant in lieu of H. O. Bales.

DATED this 26th day of June, 1929.

Frederick S. Lyon

Leonard S. Lyon

Henry S. Richmond

Solicitors and of counsel for Plaintiff-Appellee.

Westall and Wallace

By Joseph F. Westall

Solicitors and of counsel for Defendants-Appellants.

IT IS SO ORDERED this 26th day of June, 1929.

Paul J. McCormick

DISTRICT JUDGE.

[Endorsed]: Filed Jun 26 1929 R. S. Zimmerman,
Clerk By Edmund L. Smith Deputy Clerk.

I DO FURTHER CERTIFY that the amount paid for printing the foregoing record on appeal is \$ and that said amount has been paid the printer by the appellant herein and a receipted bill is herewith enclosed, also that the fees of the Clerk for comparing, correcting and certifying the foregoing Record on Appeal amount to \$..... and that said amount has been paid me by the appellant herein.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the Seal of the District Court of the United States of America, in and for the Southern district of California, Central Division, this..... day of August, in the year of Our Lord One Thousand Nine Hundred and Twenty-nine, and of our Independence the One Hundred and Fifty-fourth.

R. S. ZIMMERMAN,
Clerk of the District Court of the
United States of America, in
and for the Southern District
of California.

By

Deputy.

IN THE
United States
Circuit Court of Appeals,
FOR THE NINTH CIRCUIT.

J. M. Owen,

Appellant,

vs.

Perkins Oil Well Cementing Com-
pany, a corporation,

Appellee.

APPELLANT'S OPENING BRIEF.

WESTALL AND WALLACE,
Board of Trade Bldg., 111 W. 7th, Los Angeles,
Attorneys for Defendant-Appellant.

FILED

SEP 18 1920

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No. 5927.

IN THE

United States

Circuit Court of Appeals,

FOR THE NINTH CIRCUIT.

J. M. Owen,

Appellant,

vs.

Perkins Oil Well Cementing Com-
pany, a corporation,

Appellee.

APPELLANT'S OPENING BRIEF.

STATEMENT OF THE CASE.

Two appeals (combined by stipulation of the parties) are before the court: (1) From an interlocutory decree [R. 344] entered January 23, 1928, finding claim 2 of Letters Patent 1,011,484, granted December 12, 1911 to Perkins and Double [a copy of which patent is found at R. 254] valid and infringed and directing an accounting; and, (2) from the final decree [R. 1381] awarding judgment to plaintiff on such accounting in the sum of \$16,-250.00, together with costs. There is also involved in the appeal from the final decree what amounts to an appeal

from a decree in contempt [R. 139] and the proceedings thereupon, resulting in a decree supplemental thereto [R. 146] awarding judgment in favor of plaintiff and against defendant in the sum of \$3,591.25 and costs.

These appeals present questions of validity and infringement of claim 2 of the patent referred to; the propriety of the court's order of punishment for contempt, and the correctness of the judgment of the court on accounting.

While the voluminous three-volume record suggests complexity, it will be found that the case is more than ordinarily simple, as the subject-matter of the only claim in suit is quite brief and can readily be understood even without reference to the specification and drawings of which it is a part; furthermore there is no complicated prior art; also, we believe that much of the record will be found to contain matters of very slight if any pertinence to the material issues here presented, and that which is pertinent is largely cumulative on simple and easily understood issues.

The principles of law to be invoked are quite elementary.

The Patent in Suit [R. 254] Explained.

With the following brief explanation the court will readily understand the only claim in suit: As an oil well is drilled a pipe lining of the hole is sunk, this pipe ultimately, as a conduit for the oil, leading from the oil sands to the surface of the ground. In drilling the well, water courses are usually encountered, and unless this water is shut off the well will be a water well instead of an oil well.

The patent relates to methods for shutting off such water by pumping cement (of the kind used to make sidewalks, but mixed with a sufficient volume of water to make it fluid) down inside of the casing and up outside of the casing so as to fill the annular space between the well casing and the wall of the hole.

The claim reads as follows [R. 260]:

“The method of cementing oil wells which consists of forcing cement down through the regular well casing by means of water pressure, the water being separated from the cement by a suitable barrier, forcing the cement up outside the casing, and holding the cement in position under the water pressure until the cement hardens.”

Now, in order that the court may have a preliminary understanding of the scope of the claim just quoted and its relation to the process as a whole (part of which is not claimed) let us, laying aside the claim for a moment consider the process illustrated and described in the specification and drawings of the patent in suit. The hole has been drilled, say, a half way down to the oil sands when water is encountered. The well casing hangs in the well extending from the top almost to the bottom. The well is filled both inside and outside of the casing with water or mud. There may be a caving of the wall of the hole outside the casing at any place along its length. The problem is to remove any debris caused by such caving, and to get fluid cement into the annular space outside of the casing. The first step (not strictly of the cementing process, and not mentioned in the claim in suit) consists of what is known as “securing circulation,” by pumping

water or mud down inside the casing and up outside the casing until it flows out on the ground at the top of the well. The object of this preliminary step is to clear away all debris that may be outside of the pipe and may interfere with the proper placing of the cement. After circulation is thus secured, that is to say, after it becomes apparent by the free flow of the circulation water down through the casing and out on the ground outside of the casing at the top of the well that the way is clear for the cement—a barrier (illustrated as a plug in the patent in suit) is placed in the casing; then upon top of this barrier or separator a sufficient amount of fluid cement to cement the well—usually enough to fill the pipe for at least several hundreds of feet—is forced by pump pressure into the well on top of the barrier or separator. Then another barrier is placed upon top of the fluid cement and more water is pumped on top of this upper separator to force the two barriers with the cement between them down through the casing. The casing is not resting on the bottom of the hole, but is raised so as to permit the cement to pass around the bottom to the outside of the casing, and when the lower barrier or separator reaches the bottom it is below the casing and there is sufficient space above it to permit the cement to pass around the bottom of the casing to the space outside of it. Referring particularly to the drawings in suit [R. 254] the court will see that below the upper barrier is shown a spacing post (indicated in the drawings as 14). When the bottom of this spacer strikes the bottom of the well or strikes the lower barrier (which is resting on bottom) the upper barrier is stopped inside of the casing and this

stopping of the barrier slows or stalls the pump which indicates to the operator that the upper separator has reached bottom and that consequently the cement, except that immediately below the upper barrier is outside the casing. The pump is then shut down and the top of the well sealed by a tight head so that the solid column of water or mud on the inside of the well will prevent the cement from returning back through the open bottom of the casing. The well is then allowed to stand for several days until the cement hardens, when the tight head is removed and drilling tools again inserted into the casing and the barriers in the bottom of the casing together with what cement remains surrounding them are drilled out and the well is further sunk until another water course is reached when the process of cementing is again repeated.

In the examination of the specification and drawings of the patent in suit, we request the court at this point to carefully note the emphasis that is placed in the specification (as well as in all of the claims, including the one in suit) upon placing the cement in position *without permitting it to come in contact with the water*. (As we shall later see this is also greatly emphasized in the application proceedings upon which the patent in suit was based.) For instance, in the specification of the patent in suit [R. 256, line 1, *et seq.*] it is said:

“A further important object is to convey the cement into place without allowing the cement to come in contact with or be diluted by the water which is used for forcing the cement in.”

Again near the bottom of R. 257 in the specification in suit the patentee states:

“During this downward progress of the cement the packer [barrier] 8 prevents the cement which is above the packer [barrier] from mixing with the water which is below the packer [barrier] and which is being forced out by the packer [barrier], and thus the cement is introduced into place without being diluted by the water.”

Again near the top of R. 259 the patentee in his specification says:

“During the downward progress of the upper packer [barrier] 13, the water is prevented by the packer [barrier] from coming in contact with the cement and after the top packer [barrier] has arrived at the bottom the upper cup leather continues to prevent the water from escaping from the casing and mingling with the cement.”

Still again about one-third down R. 259 it is said by the patentee:

“The packers [barriers] are left in this position to allow the cement to harden which process quickly takes place, none of the water from within the casing being permitted to dilude it or retard its setting.”

Near the bottom of R. 259, the patentee also says:

“The water which is in the well is forced up out of the space outside of the casing as the cement is introduced, and while a small portion of the cement which is first introduced comes in contact with this water and does become softened thereby to a certain extent, this cement lies at a considerable point above the zone which is to be covered by the cement.”

Notice further that *all of the claims*—not only claim 2 in suit—*emphasize the separation of the water from the cement by a suitable barrier.*

From the above quotations from the specification (as well as those of a similar nature contained in the application proceedings upon which the patent in suit is based—to be later considered) it is quite clear that the patentee on one side and the government on the other supposed that the separation of the water from the cement was an important feature, *and the patent is clearly and plainly granted to cover such supposed invention.*

As a complete understanding of the method and process of the patent in suit will greatly simplify the work of this tribunal in passing upon the issues of anticipation and infringement, we also desire to emphasize at this point the fact that while the patent drawings show a spacing post 14, which is illustrated as extending below the top barrier, *so unimportant was this feature thought, or so clearly were patentees convinced that it was NOT THEIR INVENTION*, but was in the prior art, that its function is left to the prior knowledge of those skilled in the art and the only reference in the specification to this feature is at the bottom of R. 258 where the patentees say:

“When the post 14 strikes the bottom packer [barrier] 8 which already rests at the bottom of the well, further downward movement of the packer [barrier] 13 is positively stopped and the packer [barrier] 13 is arrested while its upper portion at least is within the casing.”

As we have seen this indicates by the stalling of the pump that the cement is in proper place outside the cas-

ing, but *this indicating function is not mentioned in the patent, and the apparatus, namely the spacer 14 and the method of manipulating and using it in connection with the casing* ARE NOT CLAIMED. No invention whatever is predicated nor suggested in the patent in suit in the employment of such indicating means; and it is consequently one of our earnest contentions that such means, being clearly disclosed and illustrated and *not claimed* are dedicated to the public for failure to claim. (Assuming for the moment novelty.)

The claim calls—not for an *indicator* to indicate when the cement is in proper position outside the casing, but for a BARRIER to separate the water from the cement, and plainly a barrier might be a cement sack or a comparatively thin disk, neither of which could have any indicating function whatsoever.

It will be noted that the two claims not sued on (claims 1 and 3), are more limited than the claim in suit. For instance, claim 1 includes the step of securing circulation above described, and both claims 1 and 3 call distinctly for *two* barriers, one below and one above the cement.

Note also that claim 2, if taken literally according to its terms calls only for a top barrier, but being for part of a process in which the feature of separating the water from the cement is repeatedly mentioned as most important and vital it is our contention that this claim is only fragmentary and a description of part of a complete process in which two barriers are necessarily used.

The Defense of Non-Infringement Outlined.

Most briefly, defendants contend they have not infringed the claim in suit because,—

(1) They have never used any barrier or barriers to separate any pressure fluid from any cement, and have thus omitted from their process that feature mentioned and repeatedly emphasized in the specification of the patent in suit as most important (as above shown) and they have not substituted any possible equivalent for such important feature.

(2) They have used a single plug (imbedded, however, in the cement *and not, therefore, a barrier*), and we contend that the claim is only for part of a process in which plainly two barriers must be used to prevent dilution of the cement by the water.

(3) They have never used *water* as a pressure fluid *as called for by the claim in suit*. They used a thick heavy mud, which will be shown not to be the equivalent of the water called for by the claim.

(4) They have never held the cement in position under water or other fluid pressure during any hardening of the cement, and have thus dispensed with the last step of the claim in suit—omitting a complete step of the claimed process.

(5) There are 54 words of the claim. More than half of this language does not in letter or in spirit or at all describe defendants' process.

(6) The part of the claim which does describe defendants' process equally describes processes admitted in the very application proceedings upon which the patent

was based to be old, and not the invention of the patentees in suit.

(7) Defendants have used only the part of the subject-matter described in the specification of the patent in suit which is admitted in the application proceedings upon which the patent was based to be old in combination with certain of those parts which by reason of a failure to claim we contend to have been dedicated to the public.

To further explain the above failure of the claim in suit to cover defendants' process:

In answer to the bill of complaint in this case defendants admitted that they had used the process described and claimed in letters patent No. 1,443,474, granted Jan. 30, 1923 to M. E. Inskeep. [R. 22.] This patent shows a plug which is equipped with spring-actuated dogs which permit it to go downward through the casing but prevent it from arising in the casing, these dogs acting in a manner similar to the pawls of a ratchet to slide over the wall of the casing in the descent of the plug but which expand outwardly and bite into the casing when the plug starts to move upwardly. *This plug is not used to separate any cement from any pressure fluid:* it is embedded in the cement, that is to say, it has cement above it and cement below it. It is used for two purposes, neither of which nor the apparatus nor method by which they are accomplished are mentioned in the claim in suit: First, the Inskeep packer plug acts as an indicator to indicate when the cement which is below it is in proper position; Second, it holds the cement in position outside of the casing (by means of the spring actuated dogs above referred to) during

hardening process, thus permitting the tight head to be removed and various steps necessary for further work on the well to be accomplished without waiting for the cement to harden. Cement is placed upon top of this plug because of a demand on the part of many operators, some of whom require as much as fifty or one hundred feet of cement above the plug. This is done as a safety factor, as frequently in pumping the cement will pass the plug and may be pumped too high outside the casing. This cement which is left in the casing is afterwards drilled out in the further sinking of the well and is not considered in any respect detrimental; but, on the contrary, is a safety factor to assure that the cement is not pumped too high outside the casing.

At the time of the grant of the Perkins patent in suit it was supposed that WATER could satisfactorily and safely be used as a pressure fluid, and this may be true with the standard method of drilling, but with the method at present used most largely (the rotary method), experience has shown that the circulation fluid must be a thick heavy mud.

Referring Briefly to the Defense of Anticipation.

The only claim in suit—but this happens to be also true of all the claims of the Perkins patent—has been clearly anticipated *not once but many times* by the testimony of many positive, credible and unimpeached witnesses. *There is no conflict in this testimony whatsoever. If such testimony is not sufficient to anticipate a patent, no patent could ever be anticipated by any testimony.*

The Defense of Want of Utility Briefly Outlined.

The patent in suit was plainly granted upon a fallacy—that of supposing that there was some utility in separating the pressure fluid from the cement. The evidence shows that there is no advantage whatsoever in any such separation. During the entire life of the patent in suit a very large number of wells have been cemented and are constantly being cemented without plugs or indicators or barriers of any kind whatsoever. Such cementing has been as successful as those in which one or more plugs or barriers were used. There is no advantage whatsoever in separating the cement from the pressure fluid. There *is* an advantage in the use of a plug as an indicator to indicate when the cement is outside of the casing, but such indicator and the apparatus necessary for its use and its method of use IS NOT CLAIMED in the patent in suit and is therefore dedicated to the public.

Errors Assigned, Considered by Reference to the Court's Opinion.

The opinion of a court in support of its decision is always of vital interest to every litigant and his attorney. It may disclose a thorough grasp of the facts and a correct interpretation and application of the law, or, on the contrary, it may quickly expose fallacies of law and fact which instantly destroy every presumption in favor of the correctness of the decision it is designed to support.

We earnestly recommend consideration of the trial court's opinion [R. 337] in the case at bar, as we believe it will be a great assistance to Your Honors in quickly understanding the specific reasons for this appeal.

Our reasons for contending that the trial court's opinion affords no logical support for the decision appealed from may be summarized as follows:

(1) It ignores arguments on admitted facts and elementary law relating to the simplest and most prominent of issues, which we deem conclusive and unanswerable, and which we most earnestly and repeatedly challenged court and counsel to consider and attempt to answer.

(2) Instead of squarely meeting the issues *in the case at bar* and directly applying the law to the facts established *in this record*, it relies heavily upon decisions in other proceedings not before the court for review, notwithstanding that some of such decisions were obviously based upon collusion, others were by consent, and others were in proceedings not adequately defended, the court erroneously stating or assuming substantial identity of issues, when such was not the fact.

(3) It repeatedly states and assumes that there is a conflict in the evidence which we contend most conclusively establishes not one but a number of prior uses, when there was no conflict in such evidence nor any reason to throw a doubt upon its truth.

(4) It fails to mention or in any manner pass upon vital issues.

To be more specific, we earnestly contend that the trial court's opinion should have contained a paragraph to the following effect:

“It is true that the separation of the water from the cement by barriers is a feature of the patent in suit most emphasized in the specification itself as

well as in the application proceedings upon which it was based; and it is also true that such fact is further emphasized as constituting the essence of the invention of the patent in suit by being included not only in the claim sued on, but in each of the other claims. It is also true that defendants do not use any barrier or barriers whatsoever nor any equivalent therefor, and while the court recognizes the elementary law that 'the claim measures the invention' (Walker on Patents (5th Ed.), Sec. 176), and that the question of infringement is whether or not the claim correctly describes defendants' process (Tosteven-Cottee Mfg. Co. v. Etinger Co., 254 Fed. 434) and that the court must take the claim as it finds it (White v. Dunbar, 119 U. S. 51) and that the court cannot rewrite the claim to make it include something more or different from what its words express (Burns v. Meyer, 100 U. S. 672), the court finds this law is not applicable in the present case for the following reasons * * *."

The evidence was so clear and our argument so earnest and our challenge to court and counsel for an answer was so insistent that we believe the court's opinion should have contained a paragraph in substance as follows:

"Although it is impossible to escape the conclusion on this record that the separation of the pressure fluid from the cement was of the very essence of the supposed invention of the patent in suit, and although it is most clearly established that such separation is of no utility whatsoever, and notwithstanding that it is now apparent that the *real* value of the subject-matter disclosed (not claimed) in the patent in suit is not in the separation of pressure fluid from cement by barriers but resides in the spacer which is illustrated as 14 in the patent draw-

ings and which serves as an indicator to indicate by slowing or stalling the pump when the cement is in proper position outside the casing, and although this spacer is illustrated and described in specification and drawings, but *not claimed* in the only claim sued on, and notwithstanding that the law is clearly to the effect that that which is illustrated and described but not claimed is thereby dedicated to the public, I consider such law not applicable in the present instance because * * *.”

Defendants went to great expense to produce what we believe to be unassailable evidence of a number of prior uses. This evidence was to the effect that identically the subject-matter claimed had been used around Shreveport, Louisiana some months prior to the date of the alleged invention of the patentees in suit. *There was no conflict whatever* in this testimony. *It would be hard to imagine a clearer and more conclusive showing of prior use. We urge that if this evidence does not establish the invalidity of the patent in suit no patent could ever be found invalid on the ground of prior use.* Under the circumstances we believe that we should have been entitled to a paragraph in the trial court's opinion somewhat as follows:

“Fifteen witnesses have been produced by defendants to prove a number of prior uses. Many of them are representative citizens of Shreveport, Louisiana, all corroborating each other as to prior uses of the subject-matter of the only claim in suit. These witnesses are highly credible. They are unimpeached, and they are supported by the logs of wells and other documentary evidence including contracts for drilling of wells proving conclusively the dates of the

operations in question. There is no reason, except that hereinafter explained for not believing their testimony. These uses are said to have occurred a comparatively short time before the alleged invention of the patent in suit, and, as it takes but a moment to insert a plug in a casing and as the operations are otherwise concealed from the eye, it would be quite easy for one to be in the immediate vicinity without knowing that a plug had been used, yet because plaintiff has produced an equal number of witnesses, many of whom were at the time of testifying out of employment, who, while admittedly not present at the times of any of the alleged uses, testified that they did not know of them, I am going to consider this a conflict in the testimony and refuse to believe the positive direct corroborated and unimpeached testimony of fifteen witnesses that such uses did actually occur for the following reasons * * *.”

Substantially the following paragraph should also have been found in the trial court's opinion if the issues had been squarely met:

“Defendants contend that they have omitted an entire step of the process of the claim in suit described as ‘holding the cement in position under water pressure until the cement hardens.’ Under well established law recourse must be had to the specification and drawings to determine the meaning of this language.

Such reference informs us that after the cement is outside of the casing the pumps are shut down and the pressure held in the casing by a tight head which closes or seals off the top of the well. It appears that in defendants' process after the cement is in place outside the casing the spring actuated dogs on

the Inskip packer bite into the casing and prevent the upward movement of the plug thus holding the cement outside the casing, and the tight head can be and is removed, defendants thus not relying upon the pressure or the tight head to hold the cement in the position outside the casing. It is clear there is a great advantage in this as it permits removal of the head and other necessary work preparatory to further drilling to be performed without the delay incident to the use of the tight head, thereby saving several days' time. Thus the dogs in defendants process and the tight head in the patent in suit perform the same function of holding the cement outside of the casing, and the question is presented as to whether they are equivalents. It is elementary that an equivalent is a means or step which not only performs the same function, *but does so in substantially the same manner.* (Walker on Patents (5th Ed.), Sec. 354.) It is true that the dogs do not hold the cement outside the casing in substantially or at all in the same manner as the pressure and the tight head of the patent in suit, but these facts and this law are not to be applied in this case because * * *."

Other paragraphs directly meeting and passing upon most vital issues could readily be suggested for insertion in the trial court's opinion, but the suggestions so far presented will give the court a brief but clear understanding of the issues upon this appeal and will enable a speedy appraisal of the pertinence and value of the law and evidence to be called to Your Honors' attention in the argument to follow.

ARGUMENT.

The Effect of Prior Decisions in Other Cases or Upon Interlocutory Motions in the Case at Bar.

As we have seen, the trial court leans most heavily upon prior decisions; *notwithstanding that the trial of this case did not involve a review of the correctness of such decisions.*

It is quite usual to call the court's attention, by setting up in a sworn answer to be used as an affidavit upon motion for a preliminary injunction, prior adjudications of validity as well as allegations of general public acquiescence, but this is done merely to raise the presumption of validity sufficiently to support the grant of a preliminary injunction. Such circumstances of prior adjudications between other parties and public acquiescence are not pertinent on final hearing of a patent infringement suit. (Walker on Patents (5th Ed.), Sec. 660) at the top of page 746 the author says:

“Such allegations [of acquiescence of prior adjudication] are merely statements of evidence and pertinent only on motion for preliminary injunction and even then only in so far as they indicate probable eventual success on the part of plaintiff. *They are not ultimate facts which form the basis of plaintiff's case.*” (Italics ours.)

In the first suit in which validity of the Perkins patent was sustained, the case of Perkins v. Wigle, substantially the only defense was non-infringement. Defendants were not using the Inskeep packer. Defendants on the verge of bankruptcy (afterwards did file a peti-

tion in bankruptcy as a result of the suit.) While present counsel for defendants represented Wigle we could not secure the necessary cooperation from him to effectively prepare and secure evidence, or present the case; and after decision there was no money for an appeal—although we were quite sure we could have established the erroneous nature of the decision if an appeal could have been taken, even upon that record. A much stronger defense of non-infringement is presented in the case at bar in that the entire last step of the claim in suit is omitted in defendants' process. An inkling can be gained as to the probability of success on appeal of the Wigle case by the following statements by Judge Trippett in the Wigle case opinion:

“I was very strongly impressed with the idea that plaintiff had made out a clear case, but after listening to Mr. Westall's argument my clear case idea was very much shocked, especially that argument in regards to what was disallowed by the Patent Office.”

Neither court nor counsel in these proceedings, nor in any other suit, *have ever answered* this argument which “very much shocked” the court's “clear case idea.”

After this first decision, the other decisions, not on interlocutory motions in the case at bar, sustaining the Perkins patent were either on their face by consent or were under circumstances strongly suggesting collusion. The decree against Halliburton was by consent [at R. 503, about $\frac{1}{4}$ down the page, Halliburton admits that he did not put any defense into this case] notwithstanding that two sets of patent attorneys employed to defend him

suggested that he had nothing to fear from the Perkins patent in suit, and notwithstanding also the fact that he was employing barriers exactly as described in the Perkins specification, using not one but two plugs. [R. 572, bottom of page.] The reason for this lack of defense was because Perkins and Halliburton had arranged for a division of the field and Halliburton was Perkins' exclusive licensee in the mid-continent field. [R. 484, middle of page.] In a letter to present counsel for defendants dated June 28, 1922, introduced in evidence as Defendants Exhibit A [R. 506, quotation R. 507] Halliburton says:

“My counsel, Brown, Boetcher and Diener of Chicago, Illinois, and H. A. Ledbetter of Ardmore, Oklahoma, after a careful examination of the Perkins' patent informed me that I had nothing to fear from Perkins.” (These attorneys specialized in patent law.)

Notwithstanding the advice of two sets of patent attorneys, Halliburton settled with Perkins. Why? Obviously because it appeared to be better business to secure or bolster up an unauthorized monopoly and to combine capital to enforce it against others than to prove and acknowledge what his attorneys evidently advised was the truth and what we contend here, namely, that there was nothing of real value in the Perkins' patent which did not belong to the public by dedication in the very patent instrument and proceedings upon which it is based, and that the claim could not consistently, under the law, be construed to cover an indicator plug not used to separate pressure fluid from cement. Clearly, Halliburton's highly efficient double-barreled arrangement of attorneys were

able to confidently give such advice without reference to the fact since uncontrovertibly established by the Shreveport depositions, namely, that it also became public property by reason of prior use in Louisiana—*not merely of the indicating plug, but the exact arrangement of two plugs and their use as barriers or otherwise as described and illustrated in the Perkins and Double specification and all claims.* Yet opposing counsel in the case at bar would have Your Honors blindly follow the collusive attempt of the Halliburton consent decree to misappropriate property which in the opinion of his own able counsel was of the public domain. And notwithstanding the fact that, as we have heretofore seen, that under the law it should have no weight on final hearing of the case at bar, not being within the issues.

In the next of the litigation so much relied upon by the trial court, namely, *Burras v. West*, we have an imposing looking record [introduced as Plaintiff's Exhibit 8, R. 485, one-third down page]. Much of the bulky camouflage of this *Burras and West* record *deals with another patent not in issue in the present litigation.* The record is padded with hundreds of pages (as the court will see by reference to this exhibit) of unnecessary testimony on behalf of plaintiff, but *with only a scant six or seven pages of testimony on behalf of the defense relating to the patent here in suit.* Moreover, such evidence related to prior uses which were properly not considered by the court because not pleaded as required by former section 4920, R. S. U. S. (U. S. Code Title, 35, Sec. 69). This is why we urge that the conclusion is irresistible that such decision was collusive. Certainly the suit was inade-

quately defended, there being practically no defense to the patent here in suit.

Suit was afterwards instituted on the said Perkins patent against the Standard Oil Company of Louisiana for \$3,000,000.00, but such suit was thereafter settled. Prior to the institution of the last mentioned suit, we, on behalf of defendants in the case at bar, took the Shreveport depositions in which, as we have heretofore stated, many thoroughly reliable and highly qualified witnesses testified to repeated public uses of the identical subject-matter described and claimed in the Perkins patent, before its alleged invention. The Standard Oil Company of Louisiana assisted us to secure that evidence and furnished counsel and facilities to aid in its procurement, as the record will show. Such compromise was dictated solely in the interests of economy and business policy (being based upon the outcome of this suit, which it was then thought would shortly be tried) and was not entered into because anybody connected with the Standard Oil Company or any of its attorneys believed for a moment that the Perkins patent to be valid. If the terms of a license are satisfactory—if one doesn't have to pay anything for it—why litigate?

True, a preliminary injunction has been granted in the case at bar. Since granting it, however, Judge James has said:

“Upon the trial of the cause I may find otherwise. I don't know what your evidence will be at that

time: I can't anticipate it. I don't pretend to anticipate it in my mind even."

Necessarily, the evidence on which the motion was granted was in affidavit form. There was a conflict of evidence. This conflict led to a misunderstanding of the meaning and scope of the injunction. Evidence to aid in passing up the scope of the claim now offered was not before the court. Neither was there any evidence whatever attacking validity of the patent in suit on such motion. Since the issuance of such injunction the Shreveport depositions were taken. No court had, prior to the decree appealed from, ever passed upon them.

It is true also that defendants in this case have been punished for contempt for violating the preliminary injunction—although there is no question but that they were acting in the best of faith and under the advice of counsel.

The propriety of the punishment for contempt is before the court on the appeal from the final decree, not being otherwise an appealable order, and we shall later point out what we believe requires its reversal.

We urge that a direct passing upon the clear-cut material issues of the case at bar is the best way to do justice and to avoid confusion. Counsel will no doubt rely, as they did in the trial court, most largely upon prior proceedings, disregarding the issues here presented. We urge that such tactics should not be permitted to confuse.

The Principal Thing of Value, and the Only Thing That Is Really Contended for in This Suit, Was Dedicated to the Public at the Time of the Grant of the Patent in Suit, and Defendants in Their Use of It, Are, Therefore, Only Exercising a Public Right.

It will first be necessary under this head to define exactly the scope of the alleged invention in issue in order that it may be distinguished from property owned by the public or others.

The patent field is closely analogous to a tract of land composed of numerous subdivisions of various proportions, ownership of which is distributed among many individuals and the public. If the case at bar were an action for trespass on one of such parcels of land owned by a private individual, it would obviously be necessary to prove that defendant came within the *metes and bounds* of such parcel. A non-suit would of necessity have to be entered if plaintiff only succeeded in proving that defendant had been upon a contiguous parcel set aside as a public park. It would be foolish for plaintiff to argue in support of such a case that if defendant had kept entirely out of the vicinity and away from the public park the action would not have been instituted. Defendant, obviously, would have as much right in the public park as plaintiff on his own property. Defendant's right to even the last inch outside the private tract is as sacred as the right of the private owner to every inch of *his* property.

Now the exact legal description—the metes and bounds of the property charged in the case at bar to have been trespassed upon is *claim 2* of the patent in suit.

If instead of claim 2 the legal description of the property charged to have been trespassed upon was: "The east 25 feet, except the south ten feet of lot 1, block 4, in the east half of the northwest quarter of section 17, twp. * * * except * * *," it is clear that a disregard by the court of a single word or phrase in such legal description might make it apply to widely different property.

Let court and counsel distinctly understand, therefore, that it is our contention that every word and phrase in the legal description of the alleged invention here in suit, namely, claim 2, must be given some effect in determining the metes and bounds of the monopoly granted to Perkins and Double and the metes and bounds of what is dedicated to the public or of what are owned by other private owners. There can be no mistake as to the law in support of this contention; it is elementary.

Walker on Patents (5th Ed.), section 176, page 220, says:

"The claim or claims of a specification are necessarily inserted in order to conform to the statutory requirement that the patentee shall particularly point out and distinctly claim the part, improvement or combination which he claims as his invention. A distinct and formal claim is necessary to ascertain the scope of a patented invention, and a patent grants no exclusive right, except to what is thus distinctly claimed. To use the words of the Supreme Court, 'the claims measure the invention.'"

At section 177, page 226, the same author (Walker on Patents, 5th Ed.), citing many cases, says:

“In contemplation of law each claim of a patent is considered as setting forth a complete and independent invention.”

At section 181 Walker (5th Ed.), also says:

“To construe letters patent is to determine precisely what inventions they cover and secure. Nothing described in letters patent is secured thereby, unless it is covered by a claim, and no element not mentioned in a claim can be read into it even though the element appears in the specification. And a claim which is clearly narrower than the invention which it was designed to cover cannot be broadened by construction to correspond with that invention. Nor can a claim which is broader than the state of the art will allow to the invention described be narrowed by a construction out of harmony with its language. * * * The construction of letters patent depends therefore upon the construction of their respective claims * * * .” (Citing many cases.)

In the case of *White v. Dunbar*, 119 U. S. 51, the Supreme Court said:

“Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction by merely referring to the specification, so as to make it include something more than, or something different from, what its words express. The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion

of the law, to construe it in a manner different from the plain import of its terms.”

So clear are the foregoing statements of the law that perhaps it is superfluous to repeat the language of *Howe Machine Co. v. National Needle Co.*, 134 U. S. 394:

“Since the inventor must particularly specify and point out the part, improvement or combination which he claims as his own invention or discovery; the specification and drawings are usually looked at only for the purpose of better understanding the meaning of the claim, and certainly not for the purpose of changing it and making it different from what it is.”

Equally familiar is the decision in *Burns v. Meyer*, 100 U. S. 672:

“It is well known that the terms of the claims in letters patent are carefully scrutinized in the patent office. Over this part of the specification the chief contest generally arises. It defines what the office, after a full examination of previous inventions and the state of the art, determines the applicant is entitled to. The courts, therefore, should be careful not to enlarge, by construction, the claim which the patent office has admitted, and which the patentee has acquiesced in, beyond the fair interpretation of its terms.”

See also *Walker on Patents* (5th Ed.), page 220, Sec. 176; *Grant v. Walter*, 148 U. S. 554; *United States Peg Wood Co. v. Sturtevant Company*, 122 Fed. 472; *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U. S. 405.

At page 352, Hopkins on Patents elucidates the law to the effect that the omission of a single step of a process claimed defeats a charge of infringement. At page 121 same author explains that each claim must speak for itself, and is in effect a patent standing by itself. At page 188 the author makes it clear by quotations and citations of numerous authorities that limitations contained in claims, whether inserted voluntarily by applicant or upon insistence of the Patent Office, cannot be disregarded.

Now, in the foregoing discussion of the law it has been our purpose to make clear *that every word and phrase in a claim must be given effect by the court in determining the scope of the monopoly covered by it*, otherwise the work of the Patent Office in insisting upon the insertion of words and phrases in limitation of its scope is wasted, and the great body of the law dealing with the interpretation of patent claims is ignored. Manifestly, every additional word and phrase in the claim narrows it in just exactly the same manner as every additional word and phrase in the description of land narrows it.

We insist that the patent monopoly in the present case is *no more and no less and no different* from the following description:

Claim 2:

“The method of cementing oil wells which consists of forcing cement down through the regular well casing by means of water pressure, the water being separated from the cement by a suitable barrier, forcing the cement up outside the casing, and holding the

cement in position under the water pressure until the cement hardens.”

When we come to consider specifically the question of infringement we expect to make clear from the application proceedings upon which the patent in suit was based THAT THE PATENT OFFICE WAS OF THE OPINION AND APPLICANT ACQUIESCED IN SUCH OPINION THAT THE REAL ESSENCE OF THE SUPPOSED INVENTION COVERED BY THE ABOVE QUOTED CLAIM CONSISTED SOLELY OF THE SEPARATION OF THE CEMENT FROM THE WATER BY A SUITABLE BARRIER TO PREVENT SUPPOSED DILUTION OF THE CEMENT BY THE WATER AND THAT THE PATENT OFFICE REFUSED TO GRANT THE CLAIM UNTIL SUCH LIMITATION AS TO SEPARATION OF THE WATER AND CEMENT WAS INSERTED. EVERYTHING ELSE IN THE CLAIM WAS THUS ADMITTED TO BE OLD.

Coming now to the specific subject of our heading, namely, dedication to the public: It should first be noticed there are two barriers illustrated in the drawings and described in the specification of the Perkins patent in suit, a top barrier and a bottom barrier. In cementing a well with this or any other process, the court doubtless has in mind that the first step is what is known as “securing circulation,” which consists of pumping fluid down through the casing and forcing it up outside the casing until it flows out on the ground outside of the casing at the top of the well.

The next step after securing circulation is, according to the process illustrated and described in the specification and drawings of Perkins (we are not now talking about what is *claimed*) consists of placing in the casing

the bottom barrier, after which sufficient cement to cement the well is pumped in on top of the bottom barrier. Then the top barrier with the spacer 14 is placed on top of the cement, the spacer extended down into the cement.

The next step consists of pumping pressure fluid on top of the top barrier to force it with the cement and bottom barrier below it down to the bottom of the well. The casing is raised less than the length of the spacer 14 from the bottom, and when the spacer strikes bottom, or strikes the bottom barrier, it cannot go any further. This slows or stop the pump and such slowing or stalling indicates to the operator that the cement is in its proper position outside of the casing.

As we shall see when we come to compare more fully defendants' process, it is not contended that defendants have ever used two plugs (or any barrier whatsoever). They have only used a plug with an extension below it, performing among other valuable functions peculiar to the Inskip patent the function of the spacer 14 of the Perkins specification. Defendant has never used such plug to separate pressure fluid from cement. Defendants' plug is always embedded in cement, for reasons hereinafter explained—*that is, it has cement above it and cement below it.*

Now, it is important for the purpose of considering the present defense, *i.e.*, the defense of dedication to the public, to note that the spacer 14 is clearly illustrated in both Figs 1 and 4 of the drawings of the patent in suit. Fig. 1 shows plainly the manner in which the spacer is intended to operate, namely, by striking the bottom while the upper plug is still within the casing.

In the specification of the Perkins patent in suit, it is said [R. 258, bottom of page]:

“When the post 14 strikes the bottom packer 8 which already rests at the bottom of the well, further downward movement of the packer 13 is positively stopped, and the packer 13 is arrested while its upper portion at least is still within the casing.”

The apparatus and mode of operation of the indicating feature of the top barrier with its spacer is thus most clearly illustrated and described in the specification and drawings of the Perkins patent in suit; BUT WHERE IS IT CLAIMED?

We have three claims in the patent in suit, in the first and third of which (not in issue in this case) both upper and lower barriers are claimed, *but only as barriers to separate water from cement*. In claim 2 only a single barrier is claimed. A short plug or disk without any spacer, or a wad of cement sacks would all constitute barriers. (It is in evidence that such sacks were used as barriers prior to Perkins.) But such short plug, or disk, or sacks, would perform no function as indicators. A “barrier” is not necessarily an indicator. The only claim in suit is limited to a “barrier.” THE ADDED FEATURES WHICH MAKE THE BARRIER AN INDICATOR ARE NOT CLAIMED.

If it had been thought desirable by applicants for the patent in suit to have *claimed* the method of using the spacer in connection with an upper plug as an indicator, that is *if they could have conscientiously sworn (as required by law) to inventorship of such feature*, this could easily have been done at the time of the application by

any number of other claims. For instance, such a claim might have been as follows:

“The method of cementing oil wells which consists of pumping cement into the casing, placing on top of the cement a plug having appended to it a spacer, forcing the plug down through the casing until the spacer strikes bottom while the plug is still within the casing.”

Or the allowance of apparatus claims for the combination of the plug, spacer and casing could have been requested. Various forms of claims covering the indicator will readily suggest themselves. THEY WERE NOT MADE.

Patentees undoubtedly could have claimed anything disclosed in the specification and drawing *provided they really believed it to be their invention and were willing to swear that they were its inventors in the oath forming part of their application required by law.* (See section 122, Walker on Patents, 5th Ed.) *They did not swear they were the inventors of the plug having appended to it a spacer or anything equivalent to it, nor did they claim they were the inventors of any method of cementing in which the position of the cement outside of the casing was indicated by the slowing or stalling of the pump resulting from the use of a plug or spacer as an indicator. The inference is that they did not claim this feature because they were not prepared to swear they were the inventors of it.* Perhaps they were conscientious and knew something about uses similar to those in the Shreveport depositions. The law as to dedication to the public is thus clearly stated by Walker on Patents (5th Ed.), page 221, section 176:

“Since all inventions, devices and improvements disclosed by the specification and not covered by a claim are dedicated to the public, all claims are required to be definite, so that the public may know what they are prohibited from doing during the existence of the patent, and what they are to have at the end of the term, as a consideration for the grant.” Citing *O. H. Jewell Filter Co. v. Jackson*, 140 F. R. 340; *Brooks v. Fiske*, 15 Howard, 212; *Buffington’s Iron Bldg., Co. v. Eustis*, 65 F. 807.

At section 186, page 250, the same author says:

“The developed and improved condition of the patent law leaves no excuse for ambiguous language or vague descriptions. The public should not be deprived of rights supposed to belong to it without being clearly told what it is that limits those rights. The genius of the inventor should not be restrained by vague and indefinite descriptions of claims in existing patents, from the right of improving on that which has already been invented. It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent. ‘As patents are procured *ex parte*, the public is not bound by them, but the patentees are. And the latter cannot show that their invention is broader than the terms of their claim; OR IF BROADER, THEY MUST BE HELD TO HAVE SURRENDERED THE SURPLUS TO THE PUBLIC.’” (Capitals ours.) (Citing among others *Merrill v. Yeomans*, 94 U. S. 573; *Burns v. Myer*, 100 U. S. 672.

The plain intent of the claim (and this will even more clearly be made to appear when we come to consider the application proceedings upon which it was based) was to

cover the separation of the pressure fluid from the cement to prevent dilution; and we urge that the claim is incapable of any interpretation (without ignoring its plain terms and intent and rewriting it to make it express something different from what its words express), which would cover the feature and apparatus necessary to make a barrier operate as an indicator, namely, the spacer and the casing raised less than the length of the spacer from the bottom.

We submit, therefore, that the added feature and operation necessary to transform a barrier into an indicator were dedicated in the patent in suit to the public by failure to claim, and that the use of a plug with a spacer, cement being placed on top of the plug so that it does not form a barrier to separate fluid from cement was open to use by any member of the public, and that when defendants use it they only exercise a public right, which right is as much entitled to recognition and protection as the subject matter distinctly claimed in claim 2 of the patent in suit.

The Shreveport Depositions Established Not One But a Number of Defenses, Any One of Which Authorizes the Dismissal of This Suit. In Such Depositions It Is Proven That the Identical Subject-Matter as Described and Claimed in the Perkins and Double Patent in Suit Was Known and Used Around Shreveport Before the Alleged Invention of the Patentees in Suit.

The statute, Title 35, Section 31, U. S. C. (formerly section 4886, R. S. U. S.) provides that any person who has invented any *new* * * * art * * * or any *new* improvement * * * may have a patent, etc.

The defenses we are now to consider are that at the time of the alleged invention of applicant for patent in suit the subject-matter of the claim in suit was not new. Plaintiff has not attempted to prove any earlier date of alleged invention than the date of the application for the Perkins patent in suit, namely, October 27, 1909.

In the Shreveport deposition we earnestly urge on behalf of defendants that we have clearly and conclusively proven that the subject-matter of not only claim 2 in suit, but of all the claims of the patent was known and used around Shreveport prior to the date of alleged invention of the patentees in suit, namely, prior to October 27, 1909.

In Walker on Patents (5th Ed.), section 71, the author states the law as follows, supporting it by numerous citations of authorities:

“Novelty is negatived by prior knowledge and use in this country by *even a single person of the thing patented*. This rule applies even to cases where that knowledge and use are purposely kept secret.”
(Italics ours.)

At section 73 the same author also says:

“Negation of novelty is not averted by the fact that the inventor had no knowledge of the anticipating matter when he made the invention covered by the patent. The patent laws do not reward people for producing things which, though new to them, are old to others in this country.”

The Shreveport depositions consist of the positive and direct testimony of those who actually used, directed the use, or were present at the time of the use of the process described and claimed. Logs of wells and other records

giving dates and corroborating the testimony are produced.

This evidence is met only by the testimony of others who say they were in the field and that they did not know or hear of such uses. It should be noted that these uses were not many months prior to the application for the Perkins patent in suit. The process of using plugs was then comparatively new. It is not at all surprising that many could be found who were in the field at the time and yet who did not know or hear of the method. That a contractor beginning the use of a new method of cementing would immediately advertise the fact far and wide throughout the oil fields is quite unlikely. He would be more likely to be secretive about it. To broadcast the idea would only be to help his competitors

The state of the record on the defenses of prior use may be set forth clearly in a very few words: On behalf of defendant there has been produced the testimony of fifteen thoroughly reputable, highly qualified and unimpeached witnesses who testified *directly and positively that they actually observed the use of plugs exactly, in many instances, as described and illustrated in the Perkins patent, and in these and other instances exactly as claimed, on various jobs around Shreveport prior to the date of alleged invention of the patent in suit.* Names, locations, and logs of wells are produced. These witnesses have testified to repeated uses, many of them corroborating each other as to specific instances. In rebuttal, on behalf of plaintiffs, the testimony of probably an equal number of witnesses is produced, many of them oil field workmen unemployed at the time of giving depo-

sitions (see Eldorado depositions particularly) who testified in effect that they did not know of such uses. Fifteen men swear directly and positively that they saw the defendant steal the horse; fifteen others say that they *didn't* see him steal the horse. Is this a "conflict in the testimony?" Has the fact of stealing been proven?

Plaintiff's rebuttal testimony is negative. There is not the least doubt but that plaintiff could have procured the testimony of five hundred witnesses who did not know of the prior uses relied upon. Remember again that some of our most important uses were only a few months prior to the date of the alleged invention of the patent in suit. It is, therefore, not at all surprising that the facts had not been so widely circulated throughout the oil fields as to be known by everybody. However, we believe that the evidence of the Shreveport depositions shows that the use of this process was pretty thoroughly known among those active in the drilling and cementing business some months prior to the alleged invention of patentees in suit, regardless of what any witnesses on behalf of plaintiff may have intimated to the contrary.

Remember, however, as we have seen, that all that is necessary to sustain the defense of prior use is a *single* use which might have been known, under the law, to only a single person. (Walker on Patents, (5th Ed.), section 71.) Hopkins on Patents, at page 421, collects numerous authorities to the effect that a single sale or use will establish this defense. In the case of National Casket Co. v. Stoltz, 157 Fed. 392, the unsupported testimony of a single witness was held sufficient to establish this defense.

We wish to emphasize the following important circumstances: The date of application for the patent in suit is October 27, 1909. The date of alleged invention is admitted not to be earlier than this date of application; that is to say, patentees do not attempt to carry back their date of invention prior to their date of application. A patent application, of course, is secret in the patent office. It is not asserted or contended or even suggested that the patentees in suit first introduced the process into actual use. The patent was not granted until nearly two years after the date of application, December 12, 1911. Now, there is no controversy whatsoever, in fact it is admitted by witnesses on both sides, that the process exactly as described in the claim in suit was widely and generally used in the territory in which the prior uses occurred at least as early as the beginning of 1910 (this was only two months after the alleged invention). *How could the process so suddenly have come into wide-spread use if it had not been known some time previously?* Important improvements in apparatus and process do not blaze suddenly into wide-spread use. They must first be discovered and then experimented with for perhaps months or years. Those who discover them are usually secretive. There is no reason why they should give the world the benefit of their discoveries or experiments, especially until they have had ample opportunity to try them out. The admitted wide-spread use as early as the beginning of 1910, we submit, is the *strongest corroboration* of the testimony of the many witnesses that the first definite use of the wooden plug as an indicator was early in 1909 (although cement sacks

used as indicators and sacks filled with shale used for the same purpose were known and used at least a year previous)—and after such first use of the wooden plug its use gradually increased throughout the year—all prior to the alleged invention of Perkins and Double.

The Use of Bundles of Cement Sacks and Sacks Filled With Shale as Indicators.

It is clearly established that beginning sometime in 1908 (nearly two years before the alleged invention of the patentees in suit) bundles of sacks were rolled together and placed on top of the cement that was being pumped down through the casing to cement the well. These bundles acted both as barriers and as indicators. Sometimes a sack would be filled with shale and used as a plug.

For instance, at R. 566, about the middle of the page, Walter George, a drilling contractor, who had been connected with the oil business one way or another ever since 1901 in various capacities which would throw him in contact with the cementing of oil wells at the time of particular pertinence to the present inquiry, testifies:

“We put sacks, a few sacks on top of the cement and put the water on top and forced it to the bottom. * * * The sacks were put in when the cement got up around the six inch, the sacks would fill up the hole between the six inch and the wall, and that would have a tendency to plug off the pump and you would know that the cement was behind the six inch casing. We pumped pressure fluid in on top of the sacks which pushed the sacks to the bottom of the six inch casing.”

Again at the middle of R. 567, Mr. George also testified:

“After the sacks got below the 4 inch casing they stayed on top of the cement and plugged off the hole. * * * The sacks were used for a plug and an indicator to plug the pump.”

[R. 568]:

“It had a tendency to plug the pump off; by forcing the cement around behind the casing, it would stop the pump. * * * That method was first used on a well known as Broussard number one, near Oil City.”

[R. 569, middle of the page]:

“At that time nothing but sacks were used. We did not use wooden plugs, but sometimes we put shale in the sacks * * *.”

[Near bottom of R. 569]:

“We put some shale in the sack and dropped it in on top of the cement and pumped it down. That was used the same way as the other sacks; it stopped the cement when it got behind the casing, when it got at the proper place * * *.”

[R. 571]:

“Referring again to the method in which the bag or sack containing shale was used, when the shale bag would hit the bottom we found out the shale bag was better than just the sacks because it would stop up the entire six inch casing—that was what we were using at that time, most of us, six inch, and it would stop the pump and check it off and we knew that the cement was behind the casing and we set back

on bottom leaving the pressure on it and leaving it to set.”

[R. 585]:

“We used some sacks on Childs 1, I think it was the first one. There might have been some shale in the sacks. I don’t remember whether there was or not.”

Log of Childs No. 1 well is copied into the record at page 738 and shows drilling commenced November 7, 1908, and completed December 12, 1908.

[R. 590, about one-third down the page]:

“I cemented Childs No. 1 in the latter part of 1908, took the job in January, I think; the well was cemented and set there over the Christmas holidays before that. I am not positive whether we put shale in the sacks or just put the sacks in on that well. We used this 4-inch drill stem.”

At R. 591, first paragraph, the witness fixes the date for the drilling of Broussard No. 1 as in May, 1908.

At R. 593, the witness says that he was on Childs No. 1 in November, 1908, and finished up that well in January, 1909.

Again at R. 594, the witness states that he finished the Broussard well not in January, but in May, or the early part of June.

At R. 611, he again explains fully how Childs No. 1 was cemented and emphasizes the indicating feature of the sacks.

At R. 612, top of page, he says:

“We would put on top the cement at the top of the drill pipe before we started, and put the fluid in on top of the cement, and then we would put in a sack. I don’t think it was one sack, and I don’t think it was a dozen; probably two or three; I cannot say definitely. They were cement sacks, but up and cut the seams out of them and put them in; roll them up and put them in. Not necessarily roll them up all together. On the Childs No. 1 well we cut the seams out of them and put them in, as well as I remember, one at a time; folded or rolled. McCann & Harper were doing that Childs No. 1 job on contract. I was present at the operation myself.”

At R. 612, he mentions Harmon Mahaffey, Fred Kyle and Lem Pyle, Mr. McCann, one of the contractors, and Harper, the other contractor, as being present.

At R. 613, he mentions a number of other wells which were cemented by the same system or by the use of plugs.

Mr. George is corroborated by Harmon Mahaffey [R. 632], who states that he was in the well drilling business since February 12, 1908, and that during 1908 and 1909 he was employed by McCann & Harper, who were operators in the Caddo field and who did operating work. At that time he was roughnecking for McCann & Harper and he cemented some wells and assisted them in cementing others. [R. 633.] This witness’ testimony is recommended to the court for careful reading. He was very positive and gives good reasons for remembering the dates. He was with Mr. George on the Broussard well. He also corroborates Walter George as to

the use of sacks on Childs No. 1 [R. 634], and referring to this last mentioned well, he says [bottom of R. 634]:

“Sacks were used for a plug to tell us as near as it could when the cement was around the bottom of the 6-inch—when the cement went around the bottom of the 6-inch; this it did by causing the pump to either stop or labor.”

At R. 635 he describes again, specifically, by particular reference to the Childs No. 1 well, how sacks were used for cementing.

Another witness who corroborates the testimony as to use of cement sacks in 1908 is J. R. Crawford [R. 662], who testifies that he is a drilling contractor and producer of oil, having been engaged in the business about twenty-one years, having been a contractor for thirteen years. At R. 671, middle of the page, he says that it was about the latter part of 1908 that the use of cement sacks as indicated, or sacks of shale, first came to his knowledge. He states that in the latter part of 1908 [R. 671, bottom of page] that he could not make a statement as to how extensive the use was, but that there were several instances about that time. He says that it was quite well known the latter part of 1908 that is to say [R. 672, bottom of page], it was talked of among the drillers, but there wasn't a great many of them at that time in this part of the country.

Another important witness is Hearne Harper [R. 707], who testifies that he is an oil well contractor and producer, having been contracting since 1905. He was of the contracting firm of Harper & McCann [R. 707], employed Walter George as drilled, and Harmon Ma-

haffey and others to be later referred to, in 1908 and 1909. At R. 731, Mr. Harper explains and refers to the use of cement sacks, stating that Childs No. 1 [R. 730] was cemented in the latter part of 1908 and [R. 731] explained how the sacks were used and how they fit the inside of the casing and how they stalled and stopped the pump to indicate when the cement was outside of the casing. He also mentions other wells that he cemented by the use of this method.

At R. 738, the fixing of dates by the witnesses whose testimony has been heretofore partially quoted, is corroborated by the production of the log of Childs No. 1 well and by reference to this log Mr. Harper testifies that the well was begun on November 7, 1908, and completed December 15, 1908. The date is thus established beyond any possible doubt.

At R. 741, Mr. Harper refers to the Richardson well as having been cemented with sacks along about this time, and describes how the sacks were used to act as indicator to slow and stop the pump.

The log of Richardson well. (Note, R. 767, middle of page, that these logs are copied into the record at the request of counsel for defendant.) The logs were contained in a book, copies of which were sold for one thousand dollars each, and it seemed to be out of the question to compel the originals to be tied up in court. They were also very bulky and contained a great many other logs of other wells not at all pertinent to any of the issues in this case. The log of the Richardson well shows that it was begun on December 7, 1908, and completed January 3, 1909. [R. 767.]

At R. 809, the testimony of W. C. Wolfe is found. Mr. Wolfe was president of the Keene-Wolfe Oil Company, a corporation which were producers and refiners and distributors of oil. He testifies he has been engaged in the oil business since 1902. He did work for the contracting firm of McCann & Harper; he was in charge of the drilling and production department of the Caddo Gas & Oil Company. He was acquainted with Hearne Harper. He came to the field in 1907 and was employed as a driller for McCann & Harper. In the latter part of 1908 and in the spring of 1909 he was a contractor; he organized the Wolfe Drilling Co. in September, 1908, and began drilling wells under contract for the Gulf Refining Company and others. He says in the latter part of 1908 and in 1909 he had knowledge of processes then used for cementing oil wells. At the bottom of R. 810 he refers to the use of cement sacks or tow sacks rolled together and tied up three or four feet long, along about this time, and also of the using of plugs or barriers, which will be considered under another head.

We are now considering the beginning of the use of plugs or barriers or indicators and it will be apparent to the court that a cement sack or a bundle of sacks or a sack of shale, whether used as an indicator or not, so long as it is placed between pressure fluid and cement, comes within the letter and spirit of the claim in suit which calls for a barrier to separate pressure fluid from cement. As we shall see, the use of wooden plugs quickly followed the use of cement sacks and most of the testimony in the record of prior use is directed to specific instances of the use of such wooden plugs. It is

most reasonable to believe that the use of sacks of shale, as testified to by the many witnesses heretofore referred to, preceded the use of the wooden plug.

At R. 845, L. A. Pyle testifies. He says he is working in the oil field as a tool pusher, having been engaged in that occupation since December, 1907. [R. 846.] That he came to the oil field in 1907 and that later (same page) he was working for Walter George, who was a driller for McCann & Harper as contractors; that he is acquainted with the manner in which oil wells were cemented in the latter part of 1908 and in the spring and summer of 1909. At R. 847 he also refers to the use of cement sacks or sacks of shale and describes fully how they were used as indicators. He further explains details of such use at R. 848, and at the bottom of R. 849 he states that they would shut the pump off. He says:

“After the sacks reached the bottom of the drill stem we pulled the drill stem out, connected the swivel onto the casing, picked the casing up far enough to get circulation, started the pump on the casing and the sacks would shut off at the bottom again. The sacks would stall the pump when they reached the bottom of the drill stem.”

Remember again that while the use of a cement sack or a sack of shale as a barrier comes as literally within the meaning of a claim as does a wooden plug, the claim not specifying the nature of the barrier nor the size or shape of it, we have directed most of our specific instances of prior use to the actual use of one or more plugs exactly as described in the patent in suit, and under the following head we shall give references and quotations from some of the most important testimony of record relating to such use.

One of the Early Specific Instances of the Use of Sacks as Indicator, Pardue Well No. 1.

The log of this well (Pardue No. 1) is copied into the record at page 735, and shows that the drilling of the well was commenced November 9, 1908, and was completed November 27, 1908. Near the bottom of R. 730, Hearne Harper testifies as to the manner of cementing this well, saying that they rolled up a bunch of sacks and put shale in it [R. 731]:

“We made a good big roll so it would fit tight inside of the casing, and then put our mud on top of that.”

He further says [R. 731]:

“They pumped pressure fluid on top of it, until the pump stopped.”

On the same page, he says:

“The sacks were put in there to let us know when we had the cement all pumped out of the casing.”

They also used it with the idea that it would prevent the mud from mixing with the cement [near bottom R. 731] the witness says:

“We used it for two purposes there.”

The testimony of Harper is corroborated by that of Wesley Jordan. At R. 860, Mr. Jordan, who was at the time of his testimony superintendent for the Ray Hawthorne Oil Company and who had been following drilling operations since 1905, testifies [R. 859] that he went to work in Oil City on the afternoon of October 28, 1908, for McCann & Harper Drilling Com-

pany. He says he worked for them just a few days as a helper and then went to work running a rig for them the first part of November, 1908. [R. 859.] At R. 860 Mr. Jordan refers to the first well that he cemented as being the first well he drilled for them after he went to work; that was the Pardue well No. 1, under discussion. He describes fully [R. 860] how this cementing was done, fully corroborating Hearne Harper.

The Prior Use of Sacks as Indicator at Childs No. 1.

The log of Childs No. 1 is copied into the record at page 738 and shows that the drilling was commenced November 7, 1908, and the well was completed December 15, 1908. Mr. Hearne Harper, referring to and producing this record, makes the positive statement that such dates are correct according to his recollection. At that time, as the court will remember from the synopsis of prior testimony, Walter George was a driller employed by McCann & Harper. At R. 590, Mr. George testifies that he cemented Childs No. 1 the latter part of 1908. At R. 593 (bottom of page) he says:

“In November, 1908, I was on the Childs 1. I finished up Childs No. 1 in January, 1909.”

At R. 611, Mr. George again refers to the cementing of Childs No. 1 and states that they put sacks in there to indicate when the cement was behind the casing. At R. 612, about one quarter down the page, he says:

“On the Childs No. 1 well we cut the seams out of them and put them in, as well as I remember, one at a time; folded or rolled. * * * That was in the Childs No. 1 well. That was McCann &

Harper doing the job on contract. We contracted that well for B. G. Dawes and associates.”

Harmon Mahaffey, who has heretofore been sufficiently introduced to the court, at R. 632 corroborates Harper and George, at R. 634 stating that he was present at the cementing of Childs No. 1, and at the bottom of R. 634 and R. 635, describing fully how the work was done. Beginning at the bottom of R. 647 and extending over on pages 648 and 649, the witness fully describes the method of cementing Childs No. 1.

Prior Use of Sacks of Shale as Indicator at Richardson Well.

The log of this well is copied into the record at page 767. The contractors are McCann & Harper. The log shows the drilling was begun December 7, 1908, and completed January 3, 1909. Mr. Harper, the contractor, testifies that this well was cemented with a sack of shale used as an indicator between the dates last given.

At R. 709, Mr. Harper refers to the drilling of the Richardson well beginning in 1908, stating that he fixed the date by a copy of the contract. Near the bottom of R. 709, a certified copy of the contract is produced and identified by the witness who states that the contract shows that in December the drilling was commenced. (This was afterwards checked by production of the log of the well.) At the middle of R. 710, the witness states:

“One reason I can remember about that well is I think it is the only well that was ever shot with nitro-glycerin to try and make it produce oil in the Caddo oil field.”

At the bottom of R. 710, the witness describes the practice and use of logs of oil wells.

The complete records of these wells were afterwards produced by witness, Mrs. Newcombe [R. 820], and by stipulation were copied into the record.

At the top of R. 714, the witness states that the complete logs of the different wells are kept by witness Newcombe, and that she sells her books containing them for one thousand dollars each. This was the book afterwards produced and logs from which were, by stipulation as above referred to, copied into the record.

The Richardson Harper contract referred to the well under consideration, has been offered in evidence as Defendant's Exhibit No. 3.

At the top of R. 741, the witness Harper further testifies:

“This Richardson well was cemented with sacks. We set the casing—after making the hole for it, near the bottom of it, got circulation, got it all washed out clean, and after we done that we run some pipe into the well, say two or three hundred feet, and then pulled it out, poured our cement in it, made a plug with sacks and put it in on top of the cement, connected our swivel up to the top of it, started up our pump and kept the pressure against it, lifted the casing off bottom a few inches, pumped it until it shut the pump off, and then let the casing back on bottom and let it set there for four or five days, and then drilled it in and made about a 5000 barrel well, I suppose, something like that, as well as I remember. We determined when the cement was outside of the casing by these sacks we put in there. When they got to the bottom of the casing there

wasn't room enough so that we could pump them on out, and they stopped in that small opening at the bottom and slowed the pump down or stopped it."

Near the bottom of R. 742 the witness testifies that this job of cementing with others was a successful one.

Generally as to the Use of Wooden Plugs as Indicators or Barriers in Cementing.

The use of wooden plugs as indicators quickly generally followed the use of sacks either rolled or filled with shale.

One of our best qualified witnesses is Walter George, [R. 564], to whom we have heretofore referred and who was actively employed as a driller for McCann and Harper beginning with the work on the Broussard well near Oil City in the spring 1908. [R. 565.] We have heretofore quoted Mr. George's testimony as to the use of sacks. Rt. R. 571 Mr. George says that besides sacks with shale they also used wooden plugs. He says the first use of wooden plugs that came to his knowledge was on the Christian well, to which we will specifically refer later as one of the specific instances in this case. Referring, however, generally, to the use of plugs, the witness at R. 578 states, "I have used the system [with plugs] since 1908, and I didn't know there was a patent on it until September, 1923." We shall later refer to this witness' testimony in connection with specific instances of use. At R. 589, however, speaking generally of the use of the plug, he says that his partner McCann favored the plugs and that he brought the plug out and had Harper put it in. This was in 1909, prior to the alleged

invention of the patent in suit. At R. 617 George mentions the different wells that this plug system was used on and at R. 618 (middle of page) he says that by 1910 this method had practically become universal in the Caddo field, that is, the plug method, and that nobody by 1910 was using sacks; everybody used plugs. "As far as I know they all used the plug system." At the bottom of R. 626 he says that the one-plug method as an indicator was in his experience, successful in most instances. He says [last line of R. 626]: "I haven't heard of two plugs being used in years."

At R. 639 Mahaffey testifies that the process of cementing with the plug as an indicator used according to his experience for the first time in the early part of 1909 is used for cementing in substantially the same way as at present, at the time of giving his testimony.

At the bottom of R. 661 Mr. Mahaffey, speaking of the first use of the plug on Christian well 1, to be later specifically considered, in the early part of 1909, being asked on how he happened to be so positive that the plug was used at that time, testified [last two lines R. 661]:

"WELL, HOW I HAPPEN TO BE POSITIVE IT WAS USED IS I MADE THE PLUG MYSELF, AND MY REMEMBRANCE IS I PUT THE PLUG IN THE HOLE MYSELF; THAT WAS A NEW THING AT THAT TIME; THAT WAS MY FIRST ONE."

At R. 666 Mr. J. R. Crawford, referring to the cementing of Powell No. 1 well, described how a plug was used. This was in January or February of 1909. At R. 672 Mr. Crawford testifies:

“I don’t know that I could give you the approximate number of wells that was cemented during 1909 with such a wooden plug as I describe in this field; I know of wells which were not cemented by such process by 1909. I understand at that time the Texas Company did not pretend to use the cementing system at all for the reason that their superintendent had had a patent or was trying out a packer that he had invented. I don’t know whether he had patent on it or not; anyhow, they were using that packer and trying it out and if they cemented any wells during 1909 I had no knowledge of it.”

The witness Walter G. Ray [R. 691], a drilling contractor and producer who started in the field in 1908 and commenced contracting about 1912, states at the top of R. 704, corroborating other witnesses, that his company had used that plug method on a well known as Powell No. 1, and he says:

“We have been cementing by it since 1909. Every well we have cemented, every well I have worked on.”

At R. 724 Hearne Harper, to whom we have heretofore referred as the partner of McCann, contractors at that time, testified [bottom of R. 724] that during the years 1908 and 1909 the indicator method was used and [near the bottom of R. 725] he describes fully how the wooden plug was used as an indicator. In the middle of R. 726 he says after the cement was outside of the casing,

“We left our swivel connected to the top of the well with the pressure on it so that the cement would not come back.”

At R. 755 appears this testimony by Hearne Harper, the partner of McCann:

“Q. By Mr. Westall: And how did you order these wells that were cemented in 1909, say between the time of the cementing of Christian No. 1, which I believe you stated was in March, 1909, up to October, 1909? A. My orders were to use cement with plugs or sacks and Mr. McCann was a little doubtful which was the best, and he cemented some by running the drill stem down at the bottom of it, as I have described, and doing it that way, and in some of these wells it was siphoned down by pouring it in in that way, as I have told you, and some of them he used the plugs.”

At the bottom of R. 810 Mr. W. C. Wolfe, heretofore introduced to the court under the last preceding heading, testified to his first experience with the use of plugs for cementing in February or March of 1909, describing that experience, as on Powell No. 1 (to which we shall later specifically refer). At R. 811 he describes this use. At R. 812 the witness Wolfe describes fully how the plug was used in cementing and he states specifically [bottom of R. 812]:

“In the early part of 1909 and prior to October 1, 1909, there were quite a few wells on which that process of cementing in which plugs were used through casing was used, and there was a number of concerns didn't use cement at that time, but there was quite a few that did use cement.”

At R. 817, referring to the use of two plugs and comparing the two-barrier system with that of the single plug, he testifies:

“Q. By Mr. Westall: You spoke of the use of more than one barrier. Please state to what extent the use of two barriers or plugs has continued to the present date, explaining the matter fully.

A. The method of cementing when they first began cementing here it was the opinion of a great many of them that where the cement was put in on top it was liable to mix with the mud and prevent the cement from setting, and in some cases the different concerns employed the use of two plugs or two barriers, one plug or barrier being placed below the cement and one above the cement, separating the cement from the mud or water below, and also separating the cement from the mud or fluid pumped in above the cement. Since that time, however, a great many of the concerns, included among which has been myself, only use one barrier or plug to act as an indicator to let us know when the cement was out of the casing. We have had just as much success with the use of one plug as we did with the two plugs.”

In connection with the use of plugs we call the court's special attention to the testimony of Tipton A. Snell, beginning at R. 834. Mr. Snell is a lawyer by profession, but occupied at the time of giving his testimony in the oil business. He says he was first engaged in the oil business in 1906 and at R. 835, middle of page, he fixes positively the time at which a certain use referred to by him was had. At the bottom of R. 835 he explains that the cementing process at this time (1906) was new to him and at R. 836 he explains how a separator and indicator was used. He says that a piece of board was cut to fit the casing, then a two-foot stick was nailed at right angles to the plane of the surface of the disk

made by the circular board. The purpose of this stick was to hold the disk horizontally in the casing. He explains that cement was pumped into the well and this disk with the stick nailed below it was placed on top of the cement [R. 837] and the whole was pumped down to the bottom of the well with the stick acting as the spacer, (illustrated as 14 of the patent in suit) and stalled and stopped the pump. This evidence is the earliest use of record of the indicator. Mr. Snell appears to be a man of credibility and standing and there is no reason why his testimony even of this early use (1906) should not be believed.

At R. 851 the witness L. A. Pyle testifies to the use of wooden plugs beginning early in 1909. At R. 855 he explains that the Texas Company was about the last company to adopt the cementing method, because, he says, Mr. Clayton, their superintendent, had a patent on a packer known as the Clayton Packer and he was trying to make his packer go. At R. 856 he testifies to the entire success of the use of the plug as an indicator beginning early in 1909. [R. 865, Wesley Jordan refers to the continuous use of plugs according to his knowledge for cementing since early in 1909.]

At R. 872, Richardson, an oil producer, who was producing oil from the latter part of 1908 and up to October 1, 1909, in the Caddo field near Shreveport, testifies that he knew of the firm of McCann and Harper, that they were well contractors, that they were in business from 1907 until a few years ago, and that he had a contract to drill a well for McCann and Harper in 1908. At R. 874 he testifies to the use of the plug method in that well at that time, fixing the date by reference to

the contract. At R. 875 and 876 he explains that a great many wells were cementing by that method after April, 1909. In the bottom of R. 876 he says that plugs were generally made out of an old field pine; that was the general method at that time, and that he is a producer of oil at the present time and is using the same method that he first became acquainted with early in 1909. At R. 877 he states that he usually has used two plugs and has been doing it for years. Early in 1910 he says he actually got on the derrick floor and superintended the cementing of the wells himself.

Specific Prior Uses of the Use of Plugs as Indicators and Barriers. Christian Well No. 1.

(Log of well [R. 603] shows drilling commenced March 19, 1909, and completed April 14, 1909.)

Practically all the crew on this well testified to the use of plug as a barrier and as an indicator early in 1909, including one of the contractors who had charge of the job, a driller and helpers on the job. *We produce the man who actually made the plug and put it in the casing.* This being his first experience, it was strongly impressed on his mind. There can be no possible doubt as to the date when this prior use occurred, as we have produced the record of the log of the well showing the date. This testimony is to be considered in the light of circumstances that preceded it. Remember the field at that time was not exceedingly well developed; there were only a limited number of wells being drilled and yet there had been, as we have before seen, a considerable use of the cement sack or the sack of shale as a barrier as well as an indicator. This use of the cement sack

had continued from 1908, which was a year prior to the date of alleged invention of the patent in suit. The witnesses who have testified concerning this prior use are well qualified, credible and unimpeached. There is no conflict whatever in their testimony nor is there anyone who ventures to dispute their word. There is no reason why the court should not accept their statements. If their evidence with its corroboration does not prove this prior use, we submit that it would be impossible to prove any prior use in any patent case.

Walter George, who, as we have seen [R. 565], was a driller, working for McCann & Harper at the time of the use to be now considered and who is now a drilling contractor, was the first to testify concerning this use. We have heretofore considered his testimony relating to the general use of plugs and the preceding use of sacks folded or rolled or containing shale. At R. 569 Mr. George testifies that the first wooden plug he knew about was a well that Harper drilled known as Pardue well No. 1. He does not testify as to actually seeing this use, but his testimony as to his knowledge of the use is not objected to and is corroborated by a number of other witnesses. [R. 569, at top of page] Mr. George says: "The first I used was on a well known as the Christian Well No. 1." At R. 572, middle of page, he says that was in March or April of 1908, but near the bottom of R. 572 he quickly corrects this by saying that he meant the spring of 1909. He states that at the time of cementing this well he was employed by the contractors McCann and Harper.

At R. 573, middle of page, he states that there was a man by the name of John Burrows who was present,

who at the time of giving the testimony was dead, and there was also a fellow by the name of Harmon Mahaffey, Fred Kyle and a fellow by the name of Crawford, who was foreman on the job, and there was another man or two. At the bottom of page 573 he says that was a successful job and they brought in a big gas well and they did fine. At the bottom of R. 575 he says on the Christian job Mr. McCann was superintendent, Mr. J. B. McCann, and there was another man whose name he does not remember. Again, at the bottom of R. 585, he reiterates that the first wooden or solid plug used by the witness was on this Christian Well No. 1. At R. 590, top of page, he explains the advantage of the plug used in the Christian well over the former methods that he had described, the use of sacks; he says:

“This made a better plug than the sacks did; by that I mean it cut the pump off better; stopped circulation. The others didn't do as good as the plug did; sometimes they would leak, would not stop up the bottom of the six-inch as good as the plug.”

At the bottom of R. 603 the log of the Christian Well No. 1 is copied into the record and this shows that the drilling was commenced in March, 1909, and completed April, 1909. This of course is conclusive on the question of date and the witnesses all say that either they remember the time positively or that when their recollection is refreshed as to the log they can testify definitely that such was the date. At R. 614 Walter George says that Harper was present at the Christian well and at the middle of R. 614 he describes the cementing specifically of the Christian well by the use of the plugs,

first, however, referring to a prior attempt to cement with other methods which failed. Beginning in the middle of R. 615, he describes specifically how the cementing of Christian Well No. 1 in the early part of 1909, many months prior to the alleged invention in suit, was carried out, saying:

“The hole was full of fluid. As soon as we got it clear we made enough displacement in it to get cement in there. We made the displacement because we had to have room to put the cement. After we got our displacement we put the cement in there. Then we put the plug on top. The plug was a pine pole cut out with an ax, something like five inches, with some sacks or some wrappers nailed on top; might have been both sacks and wrappers, I don’t remember. Some of the crew made that. I don’t remember just who. Harper thought about the plug. I don’t remember whether I had ever heard of it before or not. I don’t remember the exact length of that plug. It was trimmed enough to go inside freely down through the 6-inch and then we had to cut it and tried to make it the length of the hole, the open hole we had below the 6-inch, just so it would pass low enough below the 6-inch so the cement would stop. In other words, the plug was about the length of the amount of hole we had under the 6-inch. We were using that as an indicator to tell us when the cement was behind the casing. We put the cement sacks on top so it would make the plug—so it would stop the pump when it hit the bottom.

Q. The sacks on top formed such a plug as to convert it into a complete barrier between the fluid above it and the cement below it; is that correct?

A. Well, you can call it a barrier if you want to. It was a plug to stop the pump when it hit the

bottom. After we got that plug to the top we put the swivel on and pumped it down. I don't remember just whose idea it was. It was Mr. Harper's idea to put the wooden plug in there, and it didn't take much idea to pump it down after we got it in there. That is what it was made for."

Harmon Mahaffey was the next witness who testified distinctly and positively as to this prior use on Christian Well No. 1. His testimony is very convincing because he says [R. 637, near the top of page], It was the first well he ever saw a plug used on. He says he don't remember the date, but he does know that it was in corn-planting time, that is, a little corn was up at that time. At R. 637 he says the year was 1908, but he quickly corrects the date by saying [R. 638] it was in 1909. In the middle of R. 638, when interrogated particularly regarding the date, he says:

"I meant 1909; I withdraw the first statement if I said that. The plug we used was on Christian No. 1 well, was made out of a pine sapling six or eight inches in diameter to fit the casing it was to go in. I made it myself. The whole crew was present when I made it. The crew was Fred Kyle, Johnnie Burrows; he is dead now; and there was a fellow named Crawford; I don't know his initials, and I believe Lem Pyle—I am not positive about Lem Pyle; I wouldn't say; I am not positive about Lem Pyle. He was a roughneck. He is now in Cotton Valley. There was Fred Kyle and Crawford and Lem Pyle and Walter George; he was the driller, and another fellow there—I be dogged if I can remember his name. Let's see; there was Lem Pyle, Crawford—I believe that is all I can remember now."

At R. 641, still speaking of the same prior use (near the bottom of page), he says: "The plug was used to shut the pump off. I am sure of that," and showing the nature and positiveness of his recollection, in the middle of R. 642, he says:

"I can remember approximately the time in which these other different wells I drilled were worked on; I think all of them."

And a few lines later on the same page [R. 642, middle of page], he says:

"I heard them say they had a copy of the log of the well, but I never read it and never saw it. They asked me if I could remember when it was, and I told them I thought I could and I told him to the best of my recollection when I thought it was, and they told me that was about right. They did not tell me what dates the log showed, not at any time."

In the middle of R. 645 the witness further testifies:

"After the blow-out I think it was about two days before we started the cement down on that second job with the plug. The idea of using that plug was J. B. McCann's. He ordered it made. I don't know whether he told me direct; he told Walter to make it; anyway, I got the order and the order come through him. I believe he was at the well between the time of the blow-out and the time we started this cementing job with the plug; I don't remember. I ain't going to tell you anything unless I know positively; I don't remember positively of him being there when the blow-out was going on."

The witness then says [near the bottom of R. 645]:

“I am sure that McCann was the one who had the idea of using the plug, because he was out there and ordered it made.”

At the top of R. 646 the witness further testifies:

“Fifty sacks of cement was used with that plug on the Christian well, to my remembrance. Not exactly fifty sacks, but we had a habit of using fifty sacks along about that time.”

A little below the middle of R. 646 the witness says:

“Christian Well No. 1 was the first time I ever knew of a plug being used in a well. I can say now that it was a better method than the siphon method we had been using, but then I didn’t know. I don’t reckon that it was an experiment then with the plug, it worked mighty nice. That was the first time it had been tried, as far as I know. It worked better than the siphon method, but at that time I didn’t know which one was the best; I didn’t know personally myself, because they were both perfect successes.”

The extreme pertinence and strength of Mahaffey’s testimony can be gathered from his statement at the bottom of R. 661, where he says:

“Well, how I happened to be positive it was used is I made the plug myself and my remembrance is I put the plug in the hole myself. That was a new thing for me at that time; that was my first one.”

At R. 727 Hearne Harper, one of the contractors who did the work of cementing Christian Well No. 1, testifies:

“In 1909 I remember we cemented Christian Well No. 1 with plug, but as to that exact date I would

have to get it from this book. It was along in the springtime, and if you will let me look through there I can give you the exact date.”

(Harper is referring to a private memorandum book that he had in his possession.) There were objections as to his method of refreshing his recollection but afterwards the log of the well itself was produced as we have heretofore pointed out. At the bottom of R. 741 Mr. Harper refers to and explains how Christian Well No. 1 was cemented and near the bottom of R. 742 he states that this job of cementing was a successful one saying the Christian Well “was a big gas well and did not show any leak behind the casing after we cemented it”.

R. 743, he says:

“When we cemented Christian Well No. 1 just after the cement was pumped down, there was mud in the casing and the plug was in the bottom extending into the casing, the casing 3 or 4 feet from the bottom.”

Asked how the cement was prevented from going back into the casing [bottom R. 743], he says:

“We just left our swivel on top of the casing and couldn’t anything come back. That swivel closed off the top of the well.” (The last step of the claim in suit.)

At the bottom of R. 744, Mr. Harper states:

“On Christian No. 1, I can give the names of some of those present. Walter George was on that job, and John Burrows, and a man called Red Pyle, and Harmon Mahaffey, and that is about all I can remember now. A fellow by the name of Fred Kyle worked on it. I didn’t keep all of the names of the

men working for me, I had more than one rig. I would have to go back and hunt up some old time books to get them all, to keep them separate, because I can't remember all of the roughnecks and teamsters and men that worked for me in 1909 or 1908; I do well to look after the business end of it."

At the bottom of R. 746 Mr. Harper testifies that since cementing this Christian Well No. 1 as to whether the method was used extensively,—

"Yes, most all of the wells we have cemented have been cemented with plugs, or sacks used to show us or indicate that the cement was in the bottom of the casing and on the outside of it."

At R. 824 appears the testimony of Fred L. Kyle who, as we have before seen, was employed in the oil business beginning the latter part of 1908 and subsequently, and who testifies [R. 825] to quite an extensive experience in oil well cementing, saying—that in the latter part of 1908, in the spring and summer of 1909 he was employed by McCann and Harper as a roughneck, "helper I guess you would call it". Near the top of R. 825, he says:

"The first well that we cemented with the plug pumped through the casing was a well we knew as Christian No. 1. The other wells that we cemented were cemented through the drill stem, but that is the first well I remember pumping the plug down through the pipe. We used the method right along after cementing Christian No. 1."

Near the bottom of R. 825 he testifies positively that this was done in the spring of 1909, and at the top of R. 826 he continues to describe specifically the method which was used in cementing Christian No. 1, saying:

“After the pump stopped or stalled in those days, in 1909, we used to leave the pressure on. I mean we closed all the valves and left the pressure on the well, because we thought the mud might throw it back up * * *. That was a successful method from the time it was used in 1909.”

At R. 845 appears an abstract of the testimony of L. A. Pyle, who states that he has been employed in the oil fields as tool pusher since December, 1907, and who testifies about the middle of R. 846 that in the early part of 1909 he was a helper on a drilling rig working for Walter George, as driller, and McCann and Harper as contractors. At the bottom of R. 846 he says he knows how the wells were cemented and describes the previous use of sacks as we have heretofore set forth. At the bottom of R. 851, referring to his first knowledge of the use of wooden plugs for cementing, he states that it was about in April, 1909, when he was working on what was known as Christian Well. He says he was working there at night, (the cementing took place during the day time) and he describes what he saw—the cement piled up ready for cementing. At the bottom of R. 853, the witness says:

“I saw the cement stacked up on the floor, I think about 50 sacks of cement and about ten or fifteen sacks of sand. We used sand in those days. And I saw a wooden plug about five feet long, and I suppose about five or six inches in diameter, at the tool house, and a big bunch of shavings there where they had trimmed it with a drawing knife; but as to saying what they did with the plug exactly, I couldn't say. I was not there when they cemented the well.”

At R. 854 the following important testimony of the witness is given:

“The number of that well was Christian No. 1. Walter George was the driller and Fred Kyle was a helper, and Harmon Mahaffey was a helper, and I don’t remember the other men, there was another one there I know, but I don’t remember his name. *I have a very good reason for knowing the date this well was drilled and the time I worked on it, because I had my twenty-first birthday while I was on that well. I remember that very distinctly, because when I became of age I got some estate money from my home, and that happened while I was working on that well. I don’t think there could possibly be any mistake at all about the date. I think, according to the best of my recollection, that well was completed somewhere about the middle of April, in 1909.*”

Near the bottom of R. 854 the witness corroborates the others that the job was highly successful. The character of the witness can be gathered by his remarks in the bottom of R. 857, where he says:

“I didn’t see them put any cement in that Christian Well. I was there at night. *You told me you didn’t want anything except what I actually saw with my own eyes.*”

We submit that the positive testimony of these witnesses, corroborated by the log of the well, and the surrounding circumstances such as the previous use of sacks filled with shale or folded, established by the testimony of many other disinterested witnesses heretofore or hereafter to be adverted to, clearly establishes a prior use of the subject matter of the claim in suit and requires a finding of invalidity of the Perkins patent. Note again that

there is no conflict in this testimony as repeatedly intimated by the court, the witnesses are highly credible and unimpeached. We submit that there is no reason why the court should not accept their sworn statements as true.

Prior Use of Wooden Plug at the Dixie Well.

W. A. Abney, at the time of giving his testimony was a deputy sheriff, testifies at R. 805, as to his work in the oil fields beginning in the fall of 1908; he fixed the date [R. 805] by reference to a contract for some work which he knows he finished in February, 1908, and to a later contract of 1908 whereby the Busch-Everett Company leased a tract of land from the Dixie Oil Company to drill a well, stating that they contracted that well to McCann & Harper and that the well was finished up in February of 1909. The witness testifies [R. 806] that he did a good deal of their hauling at that time and that he had a contract with McCann & Harper to haul the rig crews back and forth, and that after the termination of that employment he went to work for the Standard Oil Company June 13, 1909. The witness testifies positively to these dates. At the middle of R. 806, he describes how this Dixie Well was cemented, saying:

“That is the first one I had ever seen cemented with the use of a plug.”

Upon objection by counsel to his remark that he had heard of others being used, he answered:

“But this one I know they did that because I was there and saw it.”

And at the bottom of R. 806, having previously described the method fully, he says:

“Well, it was done just that way, that was the first one I ever saw with my own eyes. I had seen other wells that were cemented, but I didn’t see it when it was put in them.”

Near the bottom of R. 807, the witness says:

“The Dixie well is the first one that I was right there when it was cemented. I saw a great many cemented after that at different places, but I can’t recall just what wells, because I was all over the oil fields from Oil City clear on up to Vivian and around Hosston, clear all around in that country. I remember this Dixie well so good because it was the first one I had seen cemented.”

This evidence comes from a disinterested witness, apparently credible and is clear and positive. Furthermore, it is corroborated by that of Wesley Jordan. At R. 862, Mr. Jordan refers to the well, saying that it was sometimes called the Douglas well and also the Dixie well. The witness says he knows Abney and that he used to live at Dixie. He also states that he thinks Mr. Abney was present at the time of the cementing of the Dixie well. At the bottom of R. 862, Mr. Jordan describes the cementing of the Dixie well, and at the middle of R. 863, he describes exactly how the plug was used, continuing on the same page his explanation of the operation, and saying at the bottom of R. 863 that the plug was used as a signal to indicate that the cement was outside of the pipe when the plug got down to the bottom.

The Prior Use of Wooden Plug at Jolly Well No. 2.

This is another specific instance of cementing with a plug, which is described fully in the testimony. The log of the well is found at R. 759, showing that drilling was commenced September 11, 1909, and completed September 29, 1909. The cementing of this well followed that of Christian Well No. 1, in which a plug was used. In the case of Jolly Well No. 2, under consideration, it was a machine turned plug. Walter George, the driller for McCann & Harper, refers to the finishing of this well [R. 595], in September, saying that he remembers he was on the job when the report came out that Dr. Cook discovered the North Pole, and that is the way he remembers it. He further says, another way he remembers it outside of Dr. Cook's discovery, is that he looked over the records of the well since; the log of the well. At R. 616, Mr. George describes the cementing of this well, stating [two-thirds down R. 616], that they had a machine turned plug. He says the same principle was used with both Jolly No. 2 and Christian:

“We used the plug on top of the cement and pumped it down the same way. I don't remember any other difference. I don't remember exactly how long the plug was on the Jolly No. 2; something like four or five feet. It was brought out there, and we decided it was too long and cut part of it off. It was four or five feet, maybe five or six feet, far enough to hit bottom and prevent it from going out of the casing. We then picked the casing up to where the plug sank past it and pumped it from the bottom, and the bottom of the plug struck the bottom of the well. That was on Jolly No. 2. * * * On this well the completion of the cement job was not the

completion of the well; it was drilled in afterwards.”

At R. 617, middle of the page, he says:

“We didn’t use the plug on the Jolly 1, but we used it on the Jolly 2, and after the Jolly 2 was cemented with the plug, I think pretty much all of the other wells were cemented with wooden plugs.”

(Remember, this was in September, 1909, a month prior to the alleged invention of Perkins and Double.)

Near the bottom of R. 618, the witness again describes the use of this plug method on Jolly No. 2.

At R. 756, the foregoing testimony is corroborated by that of Hearne Harper. The witness testifies:

“After Christian No. 1 well, and before October 1, 1909, Jolley No. 2 was cemented with plugs. Mr. Walter George and Mr. J. B. McCann was there and cemented it. Mr. McCann and I talked it over and stated that is the way we would cement that well, use plugs on it, and we went out there and cemented it that way. That was Jolley No. 2 well.”

The Prior Use of Wooden Plug at Powell No. 1 Well.

At R. 627, A. F. Powell is called as a witness and testifies that he is in the real estate business and is not interested in the oil business except in some property where he had a lease at one time. Witness is entirely disinterested. He states that he leased the property on which this well was located [middle of R. 628], and that the well was drilled sometime in the month of March, 1909; that this was the approximate date, according to his recollection, and that the only record of any kind that might

refresh his recollection as to the exact date was his lease on that property. At the bottom of R. 628, a certified copy of the lease referred to is produced; this lease is dated in August, 1908. The witness says that this does not enable him to fix the date more definitely than he heretofore had fixed it, namely, in March, 1909, as the time of the drilling operations.

At R. 631, the witness states that Mr. Crawford was the man who was handling the machinery in the drilling of Powell No. 1.

(We afterwards called Mr. Crawford who corroborates Mr. Powell as to the drilling of this well and describes how it was cemented.)

At R. 665, Mr. Crawford (who the court will remember at the time of his testimony was a drilling contractor and producer of oil, having been engaged in the business for about twenty-one years) testifies that he remembers the drilling of Powell No. 1 and that inasmuch as there was snow on the ground it must have been early in the season; that he remembers [R. 665] that he came to Vivian to drill this well, after having worked during 1908 around Oil City. He says he cannot give the exact date, whether it was in January or February, but it must have been in one or the other, in 1909. Near the bottom of R. 665 he describes how Powell No. 1 was cemented by the use of a plug, stating that they had them turned in the shop.

(It is significant that the use of plugs had progressed to a stage where they were turned on a lathe, instead of being made by hand.)

Mr. Crawford describes fully the use of the plug on Powell No. 1, as an indicator [R. 666].

Near the bottom of R. 673, Mr. Crawford refers to Mr. W. T. Ray, who at the time of the drilling of Powell No. 1, he said, was employed as a roughneck on the well. He again reiterates that the well was cemented by the use of a plug and states that Mr. Ray should be able to corroborate his statement regarding that well. He says that he knows that they began drilling in the winter time of 1908 and 1909 and the well was only 1,050 feet; that is the approximate depth of the well. He says that it was either in February or in March, or not later than April, 1909, that that well was cemented.

At the bottom of R. 674, he says:

“Powell No. 1 was a well of the Vivian Oil Company.”

At the bottom of R. 675, he gives us a further method by which he fixes the date. He says that about the first of June they had a cyclone that blew away the little town of Gilliam, about twenty-one miles up the river, and it hit about a mile from Oil City, and that he happened to be down at the supply store and was standing in front of it watching this same cyclone and was trying to make up his mind whether to run into a fire box on the boiler which was standing near, or to go into the supply store. He says at R. 676:

“I know it was in the spring of the year.”

He refers to a song the darkies sing about the Gilliam storm. He says he drilled both Powell No. 1 and Blackmon No. 1, (in which the same plug system was used) prior to the time of that storm, and that they were all cemented. This pretty definitely fixes the time of the cementing as prior to June, 1909.

At R. 691, Walter G. Ray testifies. The court will remember that Mr. Ray is a drilling contractor and producer, having started to work in the field in 1908, and commencing contracting about 1912, and has been doing that kind of work since that time. Mr. Ray corroborates Mr. Crawford and Mr. Powell as to the cementing of Powell No. 1, fixing the date at which the drilling was commenced on the well under consideration [top of R. 693] as February 9, 1909. He states, in corroboration of Mr. Crawford, that he roughnecked for Mr. Wolfe on that well. He states his recollection was that they worked about thirty days on the well as they had only to drill them between a thousand and eleven hundred feet and it didn't usually take long to do that. At the middle of R. 693, he states, that he remembers how the Powell No. 1 was cemented, and also stated that he has been familiar with that process since the Powell No. 1 job and that that *was his first cement job*. He says [bottom of R. 693]:

“I helped cement Powell No. 1 well.”

At R. 694 he states that the job of cementing the lower casing (there were two jobs referred to by the witness), was sometime in March, 1909, and at the bottom of R. 694, witness describes specifically how the wooden plug was made and how it was used. He says:

“Then we made a plug, I suppose it was 12 or 15 inches long, I don't remember the exact length, and put this plug in, and I asked Mr. Crawford, ‘What is the idea, how are you ever going to be able to drill that out?’ And he said that was Mr. McCann's way of cementing, and he had been doing that and had done it very successfully.”

At R. 695, the witness states in answer to a question as to whether he knew what the plug was used for and how it operated [bottom R. 695]:

“No, sir, I did not. Mr. Crawford explained that, though, when I asked him. That is the first time I had ever seen it done. On that particular job, that was the first I saw of the plug being used, then I asked Mr. Crawford how he would drill that out, and he said Mr. McCann had been using it, and it was a success * * *.”

[R. 696, top of page]:

“Said we could drill it out, so we went ahead and set the well in that way, and that is about all I know about it.”

The witness has fixed the date by reference to Engineers Time Book which is offered in evidence [bottom of R. 696] as defendant's Exhibit 2, Ray Time Book.

At R. 697, top of page, the witness says he knows how the plug operated on Powell No. 2. He testifies:

“Forced the cement down through the casing to outside; when the plug hit the bottom it demonstrated all of the cement was on the outside, and we set the casing back on bottom. It demonstrated that the cement was in the proper position because it stopped the pump, stopped the circulation.

It should be noted that the time of cementing this well is most certainly and definitely fixed by reference to the witness' records which are offered in evidence.

At R. 698 and 699, the witness mentions the names of the different witnesses that he discussed this method of cementing with at the time of the cementing of Powell

No. 1, stating that his interest was aroused because that was the first time he had the opportunity of observing that method of cementing. He says [R. 699]:

“Mr. Crawford told me if I would stay with him and take an interest he would make a driller out of me, so I was watching every chance in order to learn everything I could, and learn to be a driller * * *.”

He further says:

“Besides Mr. Crawford I talked to Mr. Walter George, Mr. Hearne Harper and Mr. Rowe about that method of cementing, and we all discussed it quite a lot.”

In answer to a question as to whether Mr. Harper knew of the process at the time of cementing Powell No. 1, the witness answered:

“Yes, sir, he knew all about it, I remember he said he used it before we had.”

At the bottom of R. 700, the witness testifies that he has no interest whatever in the outcome of this suit.

At R. 810, Mr. W. C. Wolfe corroborates the testimony of the other witness just above referred to under this heading, as to the cementing of this well by the use of indicator plug.

The Prior Use at Blackmon No. 1 Well.

At R. 673, the witness, Crawford, testifies that Blackmon No. 1 was the first real oil well drilled in the Vivian district. He says:

“That was cemented by the same process we used in the other one”

(referring to Powell No. 1). He says, it was owned by B. G. Dawes, and refers to Mr. W. T. Ray as one who could give information on it, having been a roughneck at the well at that time. At R. 674, the vividness of the witness' recollection is shown by his following statement:

“As to Blackmon No. 1, my recollection is it was in the springtime when it was cemented, and the way I fix this date is that when we drilled the well in we had an oil well, and Mr. Dawes asked me to get up at three o'clock in the morning and go out there, and if there was any oil showing around the derrick and on the pit to wash it all away, because there was some more land to be had there which he wanted before it was brought in, and he didn't want the oil showing up at daylight; and I went out there, and it wasn't cold, it was very pleasant. I walked the two and a half or three miles; got up at three o'clock as he asked me to do, and walked up to the well in my shirt sleeves.”

On cross examination [R. 676], the witness testifies he is not interested in the outcome of the case any more than he would like to see justice done to everybody.

At R. 698, Walter G. Ray testifies concerning this Blackmon No. 1 well. In answer to a question [bottom of R. 697] as to what experience he had with the use of a plug in cementing, after Powell No. 1, the witness testifies [top of R. 698]:

“Well, we moved off onto another well on a negro's farm by the name of Blackmon, Blackmon No. 1, and drilled that and cemented it the same way. I cannot tell the date of cementing Blackmon No. 1 well by reference to Defendant's Exhibit 2, my time book, but

it was in the spring and was still cool, I know. As well as I can remember, it was the latter part of April, 1909. That well was cemented the same as Powell No. 1 with the exception I remember there we were looking for something to go on top of the plug in order to stop the pump quicker when it hit bottom. It was kind of bad weather, and I had on an old rain coat—we called them slickers, and we cut the tail off of that rain coat, and folded it up and nailed it on top of this plug on Blackmon No. 1 to be sure the pump would stop when it hit bottom, and then we put some sacks of shale on top of that. Now, outside of that, that well was cemented the same as Powell No. 1. Mr. Crawford was still the driller there. As to who was present at the time of cementing Powell No. 1, Mr. Crawford was the driller, he was present, and that is about all I know of for sure, with the exception of one man that is dead, Mr. Grosh; he is dead.”

Notice that the witness' recollection as to details is very definite and complete.

At the bottom of R. 698 the witness testifies that Mr. Crawford was present and Mr. Bill Rowe was also there. The witness also testifies [top of R. 699] that after the cementing (which the court will note was long prior to the alleged invention of the patent in suit) they continued to use the plug and pumping through the casing right along, and have ever since. At the bottom of R. 699, the witness testifies that Mr. Harper knew of the use of this process prior to this time (April, 1909), he says:

“I remember he told me he had used it before we had.”

At R. 700, near bottom of the page, he says:

“The method was known among those who discussed it at that time as ‘the McCann type of cementing’.”

At the bottom of R. 700, the witness makes it clear that he has no interest whatsoever in the outcome of his suit.

A Brief Consideration of the Weight of The Evidence Above Referred To.

We have seen, in our discussion of the law preceding the synopsis of our testimony attacking the validity of the patent in suit, that a single prior use of the subject matter renders a patent void—we have also seen that such use may be proven by a single witness with strong corroborating circumstances. In the foregoing, we not only have the strongest of corroborating circumstances, the clearest possible fixing of dates by reference to records, but we have the most convincing evidence by a large number of disinterested witnesses testifying, not only to one, but to a number of uses which come precisely within the claim of the patent sued on. These witnesses corroborate each other. Many of them testify specifically concerning the same prior use.

We submit that if we have not conclusively proven not one, but a number of instances of prior use occurring during a period of nearly a year before the pretended invention of the patentees in suit, that it would be impossible ever to prove a prior use.

Defendants Have Not Infringed the Claim in Suit.

If it were necessary for the court in a patent suit to burden itself with the duties of the Patent Office—with the great labor of sifting specification and drawings and the prior art for the purpose of discovering and exactly defining the invention covered and patented—if it were required that the court equip itself with the instruments of the surveyor and personally establish the boundaries of every parcel of land involved in an action of trespass—the trial of such causes would indeed be confusing, complicated and difficult; and in the case of patent causes the work of the corps of specially trained Patent Office examiners employed for the very purpose of supervising the exact wording of the claims and thus defining as closely as words can define the scope of patented inventions would be of no avail.

One of the principal reasons why patent causes do not usually appear complicated to the patent attorney is not because of any special mechanical knowledge (the field covered by patented inventions is too broad for any such knowledge to be of much use); but because he knows the issues are necessarily narrow and because he can define them precisely even before he has seen the patent in question.

Whenever a patent attorney is asked for advice relative to the question of infringement of a patent, this is what he does: After a glance at the specification and drawings so as to know to what the patent relates, he turns to the claim to determine whether its language *describes* the proposed defendant's process or device. Generally speaking, if it does not read on or describe

the proposed defendant's device he knows that under the law there is no infringement. This was the method used by the court in *Tostevin-Cottie Manufacturing Co. v. M. Etinger Co., Inc.*, 254 Fed. 434, where the Circuit Court of Appeals for the Second Circuit held: "If a claim cannot be read on defendant's device there can be no infringement," and in *Geoghegan v. Ernst*, 256 Fed. 670, where it was held: "If a patent claim reads on an offending apparatus infringement is suggested, although not proved, but there is no infringement if the claim will not read upon that which is said to infringe."

We have said that the foregoing is true "generally speaking" because sometimes a defendant may substitute for an omitted element, a mechanical equivalent, namely, a step or part which performs the same function in substantially the same way, and constitutes substantially the same means as the omitted element (*Walker on Patents* (5th Ed.) section 354). (In the case at bar, however, it is not even remotely suggested that the doctrine of equivalents has any possible application, so that we need not confuse our discussion with it.)

We know also that Halliburton's two sets of patent attorneys whom he says in his letter [Defendants' Exhibit A, R. 506], "After careful examination of the Perkins patent" informed him that he had nothing to fear from the Perkins patent (although he was using both two plugs as illustrated and described in the Perkins specification and drawings, and also one plug just as was done by defendants in the Wagle case) [bottom R. 502]—we know these attorneys must have used this method in passing upon question of infringement; for they came to exactly

The attorneys prosecuting application for patent in suit certainly would have secured claims on the features necessary to be added to a barrier and the method of use of such features to make the barrier an indicator if *Perkins and Double had sworn that they invented them*. Opposing counsel knows this elementary law of dedication as well as anybody.

These are the considerations which undoubtedly led our Supreme Court in *Burns v. Myer, supra*, to admonish trial courts to be “careful not to enlarge by construction the claim * * * beyond a fair interpretation of its terms.”

Now, the present discussion prefaces a showing to be shortly made that *nearly half the language* of the only claim in suit does not in letter or in spirit describe or read on defendant’s process, and that the part of the claim which under any interpretation of which it is susceptible *does* describe defendants’ process *was adjudicated by the Patent Office with the acquiescence of applicant to describe an old process which was the property of other inventors or the public*. We ask the court therefore, to be patient for a moment as we feel that it is important to make clear how a loose ignoring of the wording of the claim operates to the confusion of justice and, particularly, but briefly, how it has so operated in this very proceeding on interlocutory motions.

The specification and drawings of a patent may be likened to landmarks by which the patented invention, *i. e.*, the invention covered by the claim is located. Suppose a plaintiff were suing for trespass on a parcel of land ten feet square. Such land might be described by reference to rocks, trees, etc., or other more definitely

located land. Counsel for plaintiff might by discussing entirely the land-marks, and the surrounding territory (being as silent on the ten-foot limitation as counsel in the case at bar has been on the claim in suit) give to the jury an impression that the land in question was hundreds of feet in extent and that defendant trespassed because he was on or near a land-mark a quarter of a mile away.

The foregoing is exactly what plaintiff *has* accomplished, as we shall see, in prior proceedings.

If Your Honors has quickly grasped the full significance of the preceding argument, and understand the meaning and function of the claim as a legal definition of the monopoly, every word of which must be observed—which may be *construed* but never *disregarded*, it may seem that we are overdrawing emphasis upon the fallacy of ignoring the claim, and the court may await somewhat impatiently for our comparison in which we expect to show that 26 out of the 54 words of the claim do not in letter or in spirit describe defendant's process, and that defendant has omitted the very essence of the supposed invention as defined, with the acquiescence of applicant, by the Patent Office.

However, the fact that the claim was ignored on the grant of the preliminary injunction in this case, as appears from the unmistakable statement to that effect by Judge James, will, we are sure, be recognized by the Court as a justification for such extraordinary emphasis. Here are the circumstances of such statement that the claim was ignored in granting the preliminary injunction: So uncertain was the meaning

of the preliminary injunction as construed on the contempt proceedings, and in various remarks of the court during interlocutory motions, that we actually did not know whether the injunction meant that we could not use a process without any plugs or barriers whatever, *i. e.*, what has been referred to in this proceeding as the no-plug process (admitted in the very application proceedings to be old before the alleged invention of the patent in suit); for the court had intimated *that possibly the pressure fluid for forcing the cement in place was an equivalent of the plug*. In this dilemma we must know exactly what the injunction meant or else cease operations entirely and sell our equipment; so, under the authority of *Kalamazoo Loose Leaf Binder Co. v. Proudfit, Loose Leaf Company, et al.*, 243 Fed. 895, and *Kaufman v. Williams, et al.*, D 37 Equity in this court, we applied for an order construing the injunction, asking Judge James clearly and specifically if we could use, among others, such no-plug process. Such motion to construe was made over five years ago, but has never been decided, and the partnership of Owen and Bales was forced to sell its equipment and go out of business because defendants feared that any practical process they might use might be construed as a violation of the preliminary injunction.

It was during the proceedings on this motion to construe that Judge James made it clear that in granting the preliminary injunction, and in refusing to dissolve it, he ignored the claim as a technicality, saying:

“You may be able to escape it by reason of the claims that have been made, by variation, but the fact remains that he [defendant Owen; Bales had not then

been added as a party] has taken the heart of this invention and is using it * * *. He wants to use the pressure; he wants to use the plug; and he wants to use pressure applied on top of the plug to put the cement in place. That is the heart of this thing as I take it.”

Could there be clearer evidence that the court on the preliminary injunction proceedings and on the contempt findings treated the claim as a “nose of wax”, absolutely ignoring the language? The claim that the court re-wrote for the purpose of preliminary injunction was simply pressure on top of a plug to put the cement in place. We submit that such method of reaching a decision has violated the most important and most often applied canons of construction of letters patent.

The following is a copy of claim 2 in italics and black-letter type. The language in italics correctly describes defendant’s modified Inskip process; the language in black-letter does not describe defendant’s process.

*“2. The method of cementing oil wells which consists of forcing cement down through regular well casing by means of **water pressure, the water being separated from the cement by a suitable barrier forcing the cement up outside the casing, and holding the cement in position under the water pressure until the cement hardens.**”*

Or perhaps we can make it ever more clear in the following manner: The only part of the language of the claim which describes defendant’s process is as follows:

“2. The method of cementing oil wells which consists of forcing cement down through the regular well

casing by means of * * * pressure, * * *
forcing the cement up outside the casing, * * *.”

To explain: Defendants did not use water or its equivalent (under the law an equivalent is a step or element performing the same function in substantially the same way and constituting substantially the same means (Walker on Patents (5th Ed.) page 441, last part of section 354).) They did not separate their cement from any pressure means by any barrier or separator whatsoever; they did not rely on water or any pressure (within the clear and only possible meaning of the patent, as we shall later see) to hold the cement in position until it hardened.

In short, 26 out of the 54 words of the claim do not in letter or in spirit or at all read on or describe defendants' modified Inskeep process. (Remember the language of the court in *Tostevin Cottie Mfg. Co. v. Etinger Co.*, 254 Fed. 434, quoted *supra*: “if a claim cannot be read on defendants' device there can be no infringement.”)

Concerning the process which Owen individually used before securing the Inskeep license, namely, that used by defendants in the Wigle case: defendants did not use water and did not separate the pressure fluid from the cement by any barrier. (Let it be borne in mind that it is our contention (as shown by the application proceedings on which the patent in suit was based), that the only thing new, as adjudicated by the Patent Office with the acquiescence of applicant (and the Patent Office did not know of the Shreveport prior uses) was the separation of the water from the cement, *and that the limitation as to barriers was inserted at the insistence of the Patent*

Office before the claim was allowed. In failing to use the Inskeep packer as a barrier, therefore, Owen left out the very *essence of invention* as defined by the Patent Office.)

Concerning, first, defendants' omission of any barrier to separate pressure fluid from cement: It is clearly in evidence that defendants have always put cement on top of the plug, that is to say, the plug has had cement above it and below it so as to be embedded in cement. This will not be controverted. In fact, counsel for plaintiff practically admitted by including it in his question to defendant Owen called on behalf of plaintiff to establish facts upon which the charge of infringement was predicated. [R. 548.] At R. 550, Owen testified:

“I was only using one plug, and I was not using it on top of the cement.” He says [R. 551]: “I just used it as an indicator, not to separate anything. To stop the pump and to indicate when cement was all outside of the pipe. It did that because it [the plug] could not get out of the pipe. The pipe was reduced at the bottom and being the same diameter as the pipe above the reduced portion it could not get by the reduced portion” [R. 552] “the guide or some ring or something else, at the bottom of the casing stops this plug automatically at the bottom of the casing.”

At R. 1290, Mr. Owen, called as a witness on his own behalf, explains that *from 20 to 50 feet of cement is always put on top of the plug.*

At R. 940, Mr. S. L. Pugh of the drilling contracting firm of Pugh and Miller testifies that in the use of defendants' method they always put 20 to 40 feet of cement on top of the plug. No witness is called to deny these

facts; they are uncontroverted. *The plug is not used as a barrier to separate anything. It is used only for the purpose and employs the method and apparatus which we have seen was dedicated to the public by patentees' failure to claim.* THE PLUG IS USED SOLELY AS AN INDICATOR AND NOT TO SEPARATE ANYTHING.

Now, why was the plug embedded in cement and not used as a barrier? Was this simply a clever idea for getting around the patent? In the first place, let us ask this question: Is it sharp practice to keep outside of the line of another's land and thus avoid trespassing? Is it wrong to use a public park up to the boundary line? We urge that there is slight materiality in why defendants did not trespass—why they put cement on top of the plug; but, nevertheless, we desire to show that the idea of putting cement on top of the plug (which is not shown in the Perkins patent in suit and consequently not any invention of the patent in suit) was *a thing of great value*. Here are the reasons why cement was placed on top of the plug: Cement is needed in the bottom of the pipe. Either you must use a long spacer 18 or 20 feet long ahead of the plug (as illustrated, but not claimed in the patent in suit) or as in the case of defendants' process where it is the bottom of the casing that stops the downward travel of the plug, you must put the cement on top of the plug. The reason why cement must be in the bottom of the casing is so that the bottom of the casing will be cemented off to permit a test of casing for leaks. If all the cement were pumped out of the casing, as it would undoubtedly be if there were not cement on top of the

Inskeep packer, such casing test could not be made. (See the admission on cross-examination of plaintiff's witness, Miley, as to the advisability and reasons for having cement in the bottom of the casing to be afterwards drilled out [R. 435]. Furthermore, sometimes the plug does not fit the casing as tight as it should. This might permit pressure fluid to go by, and when the plug reaches the bottom of a long string of casing there might be a considerable amount of pressure fluid the plug and below the casing which would also render impossible the casing test and might also jeopardize the job of cementing by causing a pumping of the cement too high outside of the casing. Still another reason is that sometimes the guide or obstruction at the bottom of the casing breaks and the plug goes through, (in such case performing no function whatever). Cement above the plug is then a safety factor to insure against pumping too high outside of the casing. [R. 940.]

Patentees in suit did not think of these things, yet now their assignee wants the patent in suit construed so as to embrace and cover such later genius of others.

At R. 264, is a copy of the specification and drawings of patent No. 1,057,789 granted April 1, 1913, to W. B. Wigle for Method of Cementing. This patent was adjudicated in this court in the case of *Scott et al. v. Huber et al.*, No. D-10-Equity, the decision being rendered in December, 1918. Present writer of this brief represented plaintiffs in that case. The last step of the Wigle process consists of pumping *all* of the liquid cement down out of the casing and up outside the casing. As will appear from the opinion of Judge Bledsoe deciding that

case, the defense was based upon this fact which we have been at pains to establish in this case, namely, that it is always desirable to have cement in the bottom of the casing to be afterwards drilled out. Defendants in the case last mentioned escaped infringement solely by reason of the fact that a *single word* of the Wigle claim did not read on and describe their process, namely, the word “all,” that is to say, they escaped infringement because they left some cement in the bottom of the casing, although it was stipulated *that every other word in the claim exactly described defendant's process.*

There was, therefore, nothing “evasive” about defendant's use of cement on top of the plug. The idea of using cement on top of an indicator was a valuable contribution to the art—but not a contribution made in the patent in suit, and not one that should be permitted to be exclusively monopolized by patentees in suit by any misunderstanding by the court of the true scope of their claim.

We Have Heretofore Repeatedly Stated That the Only Possible Novelty of the Claim, as Agreed Upon by Perkins and Double and the Patent Office in the Prosecution of the Application for the Patent in Suit (and They Knew Nothing of Prior Uses at Shreveport at That Time) Consisted in Separating the Water From the Cement by Barriers. The Process of Cementing Without Any Barrier Whatever, Which the Record Shows Has Long Been in Highly Successful Use, and Is Used in Competition With the Barrier Method Even at the Present Day) Was Distinctly Adjudicated by the Patent Office to Be Old.

When Defendants Use a Method in Which an Indicator Is Embedded in Cement, Obviously, They Are Using Such Admittedly Old No-Barrier Method.

These Facts Cannot Be Converted, for They Appear in the Very Application Proceedings Upon Which the Patent in Suit Was Based.

In the application proceedings for patent in suit [Defendants' Exhibit "A," R. 224], applicants say:

"Applicants' process of forcing down the cement by the hydraulic water column not only enables the cement to be forced down to any desired depth, but also after it is placed in position and even while being placed in position the cement cannot possibly be diluted by water."

At Defendants' Exhibit A, [R. 230], (application proceedings), in rejecting proposed claim 2, the examiner finds:

"Applicant has neither shown nor described a method of cementing wells in which no barriers are used between the water and the cement."

At Defendants' Exhibit A, [R. 232], applicants are found urging that they be not limited to barriers as follows:

“Regarding the rejection of claim 2, it may be stated that the barriers are not included in the claim, as it is believed that applicants should not necessarily be restricted to the use of barriers. No reason is known for thus limiting the claim.”

At Defendants' Exhibit A [R. 236], the examiner responds to the foregoing argument as follows:

“Claim 2 is again rejected for the reason that it is unwarranted by the disclosure of this application as filed.

“Applicants' argument has been carefully considered. The objection of the examiner does not go to the broad statement of the claim, nor attempt to require introduction of unnecessary limitations, but is that applicants have not disclosed the process set forth in this claim. There is no suggestion anywhere in the specification that the cement may be introduced in place without the use of barriers, nor any disclosure of a process by which the cement may be introduced without them. The claim is therefore rejected.”

The examiner then proceeded to argue, as he had theretofore, that the claim was also not allowable over references of record showing that the subject-matter without the inclusion of barriers was old. This argument must have convinced applicants, for at Defendants' Exhibit A, [R. 239], the rejected claim is cancelled and allowance of claims *limited to barriers, as the Patent Office had decided was necessary to differentiate*

over the prior art, was requested. Applicants might have appealed from this view of the examiner, but they did not. Can they now be heard to contend that the claim should be construed as broadly as though the limitations were not inserted? After agreeing tacitly with the Patent Office that the limitation was necessary to differentiate from the prior art, can they now be heard to argue that such limitation should be rejected as surplusage?

In Hopkins on Patents, page 188, we find set forth as Hornbook law, the following:

“Rule VII. The patent must be construed in the light of the limitations imposed by the Patent Office as a condition of the grant.” (Citing *Shaw Stocking Co. v. Pearson*, 48 Fed. Rep. 234-236.)

Under this rule, Hopkins, quoting from the case of *National Hollow Brakebeam Company v. Interchangeable Brakebeam Co.*, 106 Fed. Rep. 693-714, and supporting such quotation by the citation of many cases, says:

“If a patentee acquiesces in the rejection of his claim on references cited in the Patent Office, and accepts a patent on an amended claim, he is thereby estopped from maintaining that the amended claim covers the combinations shown in the references, and from claiming that it has the breadth of the claim that was rejected. (Citing many cases.) When the practice of the Patent Office was to make references to and deny patents on rejected applications, a patentee who amended his claim upon reference to a device contained in such a rejected application was held estopped to claim the device in question to be an infringement of his amended

claim, even though the citation was erroneously made by the Patent Office.” (Citing *Lapham Dodge Co. v. Severin*, 40 Fed. Rep. 762-764.)

Quoting from *Sargeant v. Hall Safe Lock Co.*, 114 U. S. 63, 29 L. Ed. 67, and citing *Hubbell v. United States*, 179 U. S. 77-82, 45 L. Ed. 95, *Hopkins on Patents* on page 189 also says:

“In patents for combinations of mechanism, limitations and provisos, imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon in the nature of disclaimers. A claim so modified cannot be construed to be as broad as before its enforced modification (citing *Phoenix Castor Co. v. Spiegel*, 133 U. S. 360, 33 L. Ed. 663; *Williams v. Goodyear Metallic Rubber Shoe Co.*, 49 Fed Rep. 245); and this rule obtains though the applicant made the amendment under protest, undertaking to seek such broadened construction after issue. (Citing *Thomas v. Rucker Spring Co.*, 77 Fed. Rep. 420, 23 C. C. A. 211.)”

If applicants had not desired to acquiesce in this view of the Office they could have appealed, first to the Board of Examiners in Chief, next to the Commissioner of Patents in person, and from the Commissioner to the Court of Appeals of the District of Columbia. (Rules 133, *et seq.* Rules of Practice of the United States Patent Office and statutes there referred to. Also *Walker on Patents* (5th Ed.) Sec. 133.) If they still desired to litigate the question they might have filed a bill in equity in the United States District Court to com-

pel such issuance, notwithstanding adverse decisions on such appeals. (Walker on Patents, 5th Ed. Sec. 134.)

In the comparatively recent case of Selectasine Patents Co. v. Prest-O-Graph Co., 282 Fed. 223, our Court of Appeals, Judges Gilbert, Ross and Hunt, opinion by Judge Hunt, on page 224 said:

“It was the Patent Office that determined that the process of using a plurality of screens, or a screen for each separate color, is old in the art, and the patent was granted on the theory that the process was old. Likewise, upon that very theory, the limitations which were put upon the claims of the patent, by the Patent Office were acquiesced in by the patentees. Therefore, the patent must be construed with relation to the rejected claims and to the state of the prior art as considered by the Patent Office. Hubbel v. United States, 179 U. S. 80, 21 Sup. Ct. 24, 45 L. Ed. 95. We were always in accord to the extent that the patentee cannot escape from the position which he took before the Patent Office, and the consequence of not having appealed from the action of the Patent Office.”

In the case at bar the Patent Office decided that any of the combinations of the claims proposed *which did not include barriers was old*. Plaintiff acquiesced in this view and included barriers. We submit that any process which does not use barriers between the cement and water is not the Perkins process and therefore cannot infringe said process.

The Claim Calls for Water as Pressure Fluid. Defendants Have Never Used Water: They Have Always Used Mud. Mud Is Not the Equivalent of Water.

Defendants use a thick heavy mud as pressure fluid, and not water [R. 940]. Patentee Perkins at R. 395, admits a thick heavy mud is now almost universally used. He also admits that under the old method of drilling with standard tools (time of grant of Perkins patent) *water* was mostly used. He says [R. 395], that water is only used under present day practice *to thin the mud*.

The patent claims the use as a pressure fluid of *water* and not mud.

In the rotary method of drilling now almost universally used, mud is absolutely necessary. [R. 395.] Water could not be used as it would wash away the mud lining of the hole and probably cause caving. Furthermore, the use of water as pressure fluid is prohibited because it is too light and would probably require such excessive pump pressure in the case of deep wells as to burst the pipe. [R. 940.] Hematite is used to increase the weight of the column of mud to counterbalance the weight of the cement outside of the casing and thus permit a safer pump pressure to be used in deep wells. [Plaintiff's witness Miley, R. 439-440.]

In short, mud is successful and water would not now be attempted to be used because it is not adapted for the purpose, and would not fit in with the necessities requiring the use of rotary mud, the hole being under present practice always full of mud as admitted by patentee Perkins [R. 395]. Water would therefore, be a failure

impracticable for use under present practice. *We contend there is no equivalency between success and failure.*

If this point had been raised and there had been evidence to sustain it in the suit against Wigle and Cottongim, we believe the outcome in that case might have been different. Concerning this, Judge Trippet said:

“In my opinion they could no more call that stuff, that is pumped in above concrete or last barrier water than you could call the lava that ran down Vesuvius and covered Pompeii water.”

We did not have the evidence before Judge Trippet that we have in the case at bar to the effect that *water is a failure and mud is a success.*

Defendants in Their Modified Inskeep Process Have Omitted the Entire Last Step of the Claims in Suit.

Finally, on this question of infringement, we urge that in the use of defendants' modified Inskeep process *the entire last step of the claim* in suit is omitted, namely, the step described as “and holding the cement in position under water pressure until the cement hardens.”

Hopkins on Patents as section 289, gives the following rule:

“RULE XXI. THE OMISSION OF ANY STEP OF A PROCESS AVERTS A CHARGE OF INFRINGEMENT.”

In support of this text Hopkins quotes Mr. Justice Strong in the case of Goodyear Dental Vulcanizing Company v. Davis, 102 U. S. 222, 26 Law Ed. 149, as follows:

“It may be conceded the patentee is protected against equivalents for any part of his invention.

He would be, whether he had claimed them or not. But when a product arrived at by certain defined stages or processes is patented, only those things can be considered equivalents for the elements of the manufacture which perform the same function in substantially the same way. The same result may be reached by different processes, each of them patentable, and one process is not infringed by the use of any number of its stages less than all of them.”

In the process of the patent in suit, the last step of the claim 2, “and holding the cement in position under water pressure until the cement hardens,” is performed by a tight head at the top of the well which, obviously, must be kept on top of the well and kept closed, otherwise the weight of the cement on the outside would cause it to flow back into the casing and force the pressure fluid out at the top of the casing. In defendants’ modified Inskip process the head has always been taken off or defendants have at least opened the cocks so as to relieve the pressure, relying upon the spring-actuated dogs of the Inskip packer to prevent the packer from rising in the casing and the cement from flowing back from the outside to the inside of the casing. At reporter’s transcript, page 532, line 17, defendant Owen testifies that they cemented between 200 and 250 wells with such modified Inskip process and [R. 957] either the head was removed or pressure released by opening stop cocks in all but possibly three or four of them. These three or four were all cases where the plug did not perform its intended function because the guide or stop at the bottom of the casing broke [R. 958] or because inadvertently too small a plug was used, in either of which cases,

obviously, the plug performed no function whatever—certainly none of the functions either described in the specification or claimed in the patent in suit, the process where the plug thus failed being virtually a non-indicator process.

Being able to dispense with the tight head is a great advantage. In the case of the process of the patent in suit after the cement is in place outside the casing the well must be allowed to stand with the head on for several days while the cement hardens; in the case of defendants' modified Inskeep process the fact that the head can be immediately taken off saves valuable time.

It has not even been suggested, much less contended, that the dogs of the Inskeep packer are the equivalent of this last step, as obviously, while they perform *in part* the same function as the mud column above the packer with the tight head, they do so in *substantially a different way and constitute substantially different means*, and therefore do not come within the definition of an equivalent. (Walker on Patents (5th Ed.), section 354.)

Plaintiff's counsel have endeavored to answer our argument that defendants did not use the last step of the claim in suit by reading only *the letter of this language of the claim and not its spirit*. Thus they say: The column of mud above the packer has weight, and therefore pressure and they assume (although, obviously, there can be no convincing proof of the fact) that if the column of mud above the packer were removed the dogs themselves would not be sufficient to hold the cement outside of the casing. (Of course, it is foolish to talk about removing the mud from the casing, the well, as

Mr. Perkins admitted, being always full of mud during the drilling and cementing operations.)

Obviously, neither would the column of fluid without the tight head hold the cement outside of the casing.

Now, such literal reading of the language of a claim is not authorized by law. The case of *Westinghouse v. Boyden Power Brake Co.*, 170 U. S. 537, 568, 42 Law Ed. 1136, is the leading case on this matter of literalness. The court there said:

“The patentee may bring the defendant within the letter of the claims, but if the latter had so far changed the principle of the device that the claims of the patent literally construed have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted when he has done nothing in conflict with its spirit and intent.”

Notice how the court stresses the “actual invention.” The actual invention was certainly not the weight of the column of water inside of the casing, for patentees have shown a tight head which obviously must be used. (It is in evidence, uncontradicted, that in those three or four instances out of 250 where the Inskip packer performed no function, that defendants *had to keep the head on to keep the cement outside of the casing.*) Patentees show no conception of any other means than the tight head to hold pressure, and this was what was plainly meant by the last element of this claim. Walker on patents (5th Ed.) in section 182 collects many authorities to the effect that the language of claims must be construed in the light of the description and drawings.

At page 341 Hopkins on Patents, quoting Brown, J., in *Goodyear Shoe Machinery Co. v. Spaulding*, 101 Fed. Rep. 990, 994, says:

“Infringement should not be determined by a mere decision that the terms of the claims of a valid patent are applicable to defendant’s device. Two things are not precisely similar because the same words are applicable to each.”

Hopkins also at page 340 under rule IV which reads, “TO INFRINGE, SUBSTANTIALLY SIMILAR MEANS MUST BE EMPLOYED,” sets forth the language of Judge Lurton, in *Bundy Mfg. Co. v. Detroit Time-Register Co.*, 94 Fed. Rep. 524, 540, as follows: “The alleged infringer must have done something more than reach it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no practical value.”

Hopkins also gives us on page 348 the following rule: “RULE XIV. A DEVICE MAY BE WITHIN THE LITERAL TERMS OF A CLAIM YET NOT INFRINGE.”

Quoting in support of this rule the language of Mr. Justice Brown in *Westinghouse v. Boyden Power Brake Co.*, 170 U. S. 537, 568, 42 L. Ed. 1136, 1147, as follows:

“Even if it be conceded that the Boyden device corresponds with the letter of the Westinghouse claims, that does not settle conclusively the question of infringement.”

If the language of a claim is to be read according to its letter and not its spirit, such reading may result in its covering something that the inventor never had in mind and did not contribute to the art. As we have

often before argued, under such circumstances a claim on a toothed comb might read on a picket fence.

It is elementary law also that a claim may be limited, but can never be enlarged, by reference to the description or drawings. See cases cited on this law at Hopkins on Patents, page 197.

In the case of McClain v. Ortmeyer, 141 U. S. 419, 35 L. Ed. 800, Mr. Justice Brown has said:

“The claim is the measure of his right to relief, and while the specification may be referred to to limit the claim, it can never be made available to expand it.”

Applying this rule, the court should look to the specifications and drawings to determine what the patentee meant by the last step of the claim “holding the cement in position under the water pressure until the cement hardens,” and then should construe this language as applying to the step actually given to the world, and not some method that the patentee clearly did not have in mind and did not contribute to the art.

If there were no other difference between defendants’ process and that of the claim in suit than the omission of this last step, without the substitution of what clearly comes within the definition of an equivalent there would be no infringement. The court will no doubt remember the often quoted language of Judge Baker in Adam v. Folger, 120 Fed. Rep. 260, 263, 55 C. C. A. 540:

“If a patentee claims eight elements to produce a certain result, when seven will do it, anybody may use the seven without infringing the claim, and the patentee has practically lost his invention by declaring the materiality of an element which was in fact immaterial.”

Overlooking the Antiquity of the Entire Subject-Matter of Specification and Claims as Established by the Shreveport Depositions, and Treating the Record as Though No Such Evidence Was Before the Court, the Essence of the Alleged Invention as Agreed Upon by Applicants and the Patent Office Namely, Separation of Water From the Cement, Is Practically of No Value.

As we have seen, applicants tried to cover and secure claims on a process of cementing without plugs or barriers. For instance, one of such claims [Defendants' Exhibit A, claim 3, afterwards 2 as amended, R. 577] reads:

“The method of cementing of oil wells which consists of forcing cement down the well casing between two water columns.”

This was disallowed by the Patent Office on the grounds that it was not the invention of the applicants and was old. This is the no-plug process which it will be remembered defendants have been at great pains in this case to show has been long in successful use, and is used even at the present day in competition with the method in which barriers are used and is as successful as the barrier method. Many witnesses have testified to this fact, referring to such method as the “no-plug” method. Mr. C. G. Shand, president of the California Oil Well Cementing Co., was one of these witnesses. At [R. 898], Mr. Shand testifies that his company does not use plugs in cementing. At [R. 899], he says that while he could not say exactly just how many wells his company had cemented by such no-plug method, it was in the neighborhood of not to exceed [R. 899] 900, all of

which are cemented from January 14, 1924, to the date of trial. At R. 901, Mr. Shand makes it clear that all these wells were cemented in the state of California by the no-plug process, that is, by the method which Perkins and Double have attempted to cover in their patent application, but upon which claims were rejected by the Patent Office on the ground that it was not the invention of the patentees in suit and was old. Mr. Shand's testimony proved also that it is *successful* even in competition with the plug method at the present day.

Roscoe W. Stevens, who at the time of his deposition was field superintendent for the St. Helens Petroleum Company, while he was superintendent of the Lompoc properties of the Union Oil Company [R. 921] says that beginning in the early part of 1911 [R. 922] he cemented oil wells for the Union Oil Company, not using tubing, but pumping through the casing, that is to say, using the same no-plug method of rejected claims of Perkins and Double, and which is used at the present day by the California Oil Well Cementing Company.

At [R. 925], Mr. Stevens says that probably 200 cement jobs came under his personal observation and that *in none of these jobs* was any barrier or plug used between the cement and pressure fluid. The pressure fluid was pumped directly on top of the cement without any attempt to separate them. At R. 925, he says that the percentage of success with such no-plug method was about equal to other methods of cementing.

Ignoring entirely for the moment the Shreveport depositions, the foregoing is given as a complete answer to the erroneous impression expressed in the opinion of

Judge James, on motion for preliminary injunction to the effect that prior to the application of the patent in suit:

“No sure or generally effective method had been devised, for shutting out of water from oil wells * * *. It was therefore a matter of outstanding importance, a thing which marked the difference between success and failure in the oil industry that a method be devised by which water could be prevented from mixing with the oil.”

By the very application proceedings for the patent in suit it was admitted that the no-plug method was old, and by the evidence we have just called to the court's attention it is clear that such method was and is highly successful; that it has long been used, and is in use at the present day. Of course, no matter how great had been the contribution of Perkins and Double, they would not be entitled to more than the words of their claim clearly express; but if the preliminary injunction was granted on the theory that the claim could be disregarded because Perkins and Double had given the world the first successful method of cementing oil wells such idea is entirely erroneous. The no-plug system was known before Perkins and Double, and it was used then, and is even used at the present day, by many in preference to the method in which plugs are used.

Is it not obvious that if the old no-plug method is successfully used on such a large scale at the present day, *the separation of pressure fluid from cement is not necessary and that the supposed real contribution to the art by patentees in suit is of little or not real utility?* Is it not also clear that the real value of the plug is only as an indicator?

The success of the no-plug process conclusively establishes that the separation of the pressure fluid and the cement to prevent supposed dilution is of no practical value, and *yet such separation is all that patentees in suit (overlooking the Shreveport depositions entirely) added to the art by their very confession to the Patent Office at the time of their application.*

Defendants'-Appellants' Appeal From the Action of the Court in Entering the Decree in Contempt [R. 139] and the Judgment Thereon Against It [R. 146] in the Sum of \$3,155.05 Expenses, and \$436.20 Costs. It Is Believed There Is Clear Error Involved in These Decrees.

In the answer of defendants' to the bill of complaint in this cause they have described fully and correctly the process of cementing which they had used [R. 21] paragraph XIII *et seq.*, inserting in such answer a copy of the Inskeep patent under which they had secured a license for a consideration of \$5000.00 and a royalty and under which they were operating. Furthermore, in answer to interrogatories propounded by plaintiffs they also fully describe such process of cementing under this Inskeep patent, making it clear that they used the Inskeep packer with its ratchet pawls permitting it to go down through the casing but preventing its rising in the casing, thus omitting the last step of the process, which calls for pressure to be held on the well by a tight head during the setting of the cement. They also pointed out clearly in these answers, as well as in affidavits thereafter filed in opposition to the motion for preliminary injunction, the other differences between their process and the subject matter called for by the claim

in suit which we have fully heretofore explained in this brief in our discussion of the question of infringement.

On the motion for preliminary injunction defendants' contention that they had omitted the last step of the process by removing the tight head or opening its stop-cocks was contested by plaintiffs' witnesses and there was, consequently, a conflict in the evidence on this point. The court decided this contention in favor of plaintiff, holding that defendants *had*, notwithstanding their insistence to the contrary, maintained pressure on the well by the tight-head after the cement was in place outside the casing.

The whole theory of plaintiffs' case on motion for preliminary injunction, was apparently based upon the use by defendants of the tight head to maintain pressure, this theory impliedly conceding that if defendants' did not use the tight-head they omitted the last step of the process of the claim in suit and therefore did not infringe.

In his opinion awarding the preliminary injunction Judge James said [R. 48]:

“It was also asserted at the hearing that defendant did not hold the pressure established against the tight-head by the pump during the time allowed for the cement to set. Direct issue was taken with him on this point by several persons who presented affidavits wherein it was stated that affiants had observed defendant at work in several instances, at times just prior to the hearing, and that he had in all cases held the pressure against the head by shutting off the stop-cocks connected with the latter. Considering all of the circumstances shown, and if it be conceded that under Claim 2 the holding of the pressure while the cement is setting is an indispensable step in the

process, as to which a definite decision need not now be announced, the conflict of that evidence may well be resolved in favor of the plaintiff.”

It is clear from the immediately foregoing quotation that the court granted the preliminary injunction on the theory that defendants, notwithstanding their insistence to the contrary, *did* use the tight head, and it is clear that the injunction was granted against the use of a process in which such tight-head was employed. The court's suggestion that possibly the last step in the process was not an indispensable one, is, of course, fully answered by the law that the omission of a single step in a process avoids a charge of infringement and that there is no such thing known to the law as an immaterial element in a claim (Hopkins on Patents, Sec. 289, Rule XXI, and cases cited).

The law previous to this decision on injunction thus had long and firmly established that the step referred to *was an indispensable step of the process* and that if defendants did not use such step in combination with the others there was no infringement. If the court had believed and intended to hold that whether the defendants used the tight head or not it was guilty of infringement—if it had been the intention of the court to restrain defendants from the use of the process which it is admitted in their sworn answer to have been used by them, namely the use of a process in which the element of pressure was dispensed with, how easy it would have been for the court to have made it clear that the defendants were restrained from the use of the Inskeep packer in the manner in which they had admitted in their answer

to have used it. The court could, in a single sentence, have made its injunction as clear as the noon-day sun by simply holding that the use of the Inskeep packer constituted an infringement whether pressure was used or not, and that defendants were restrained from such use.

As attorneys for defendants we were called upon to construe this injunction, and we believed then and we submit now that there is only one reasonable interpretation for it and that is that the language clearly implies that defendants were restrained from the use of the process in which, as a concluding step, pressure was maintained by a tight head. We did so advise defendants and are earnest in our belief that we were correct in so doing. After several months of patient watching by plaintiff's detectives it became apparent to plaintiff that what defendants' had said in their answer was true and that they did not maintain pressure, but omitted the last steps of the process. Notwithstanding this thorough proof that plaintiff's own witnesses did not speak the truth on motion for preliminary injunction and that defendants did truthfully describe the process they had been using, contempt proceedings were instituted, during which it clearly appeared that this last step was not used, and the decree in contempt now complained of was entered. We submit that such decree was unjust and erroneous, that the defendants were justified in believing that it meant that they were restrained from the use of a process in which a tight-head was used to maintain pressure and that they were not guilty of any violation of any injunction of the court as clearly and plainly construed by the court's opinion accompanying it which implied that if they did not use the tight-head they did not

infringe. We submit that the assignments of error on the decree in contempt should be sustained and this judgment and decree should be reversed.

The Amount of Judgment in the Final Decree (\$16,250.00) Even Assuming Validity and Infringement Is Very Excessive, This Amount Is Based Upon a Finding That \$50.00 Per Well Is a Reasonable Royalty. The Only Royalty Ever Paid for the Use of the Process of the Patent in Suit Was \$25.00 Per Well and the Following Admitted Facts, We Believe, Will Show Even the Last Mentioned Amount To Be Excessive.

Under a previous heading in this brief, we believe we have made it clear that the no-plug process of cementing, admitted in the very application proceedings upon which the patent in suit was based to be old, had long and successfully been used, to as great an extent as that of the plug process. The court will remember the testimony of Mr. C. G. Shand, president of the California Oil Well Cementing Company, who testified that previous to the trial and from 1924, his company had cemented 900 wells, all by the use of this no-plug process. [R. 899.]

We have also called the attention of the court to the testimony of Roscoe W. Stevens, who testified that while superintendent of the Union Oil Company [R. 921] and beginning with 1911 [R. 922], they had cemented all their wells in his district by pumping through casing and using the same no-plug method of the rejected claims of Perkins and Double—the same process which even up to the time of trial the California Oil Well Cementing Company (as well as many others) had been using successfully.

This no-plug method of cementing was set up as a standard of comparison and it was contended that inasmuch as cementing could have been accomplished as successfully without the use of any plug or indicator, as with it, that there should be no substantial recovery in the case at bar. Of course, it is elementary that the profit to be recovered is only the advantage, if it can be measured in money, of the use of a patented process over an old method which a defendant was free to use, and that such recovery should not be the entire profits resulting from the general operations of a defendant. (Hopkins on Patents, p. 595.) On behalf of plaintiff it was not attempted to prove damages. The only theory was on the basis of a reasonable royalty.

The return to the master's order, and the evidence that supported it, showed that during the alleged infringement period defendants had cemented 321 wells, about 50 of which, however, were cemented by the no-plug process, leaving about 271 in which the indicator was used. It also appears clearly in evidence that those using the no-plug process, including the defendants in the case at bar, got as much for cementing wells by the use of the no-plug process as they got when they used the plug or indicator. The reason why defendants used the plug was, first, because of their license under the Inskeep patent and the specially constructed packer which by reason of the ratcheting pawls, which held it in the bottom of the casing, enabled the tight head to be removed and thus save several days time; second, the indicating feature was of some value—although, even where the plug is used, as a further check on the placing of the cement, the displacing fluid is measured in. Such measuring in had long been the method used in the no-plug system of cementing. Under these circumstances,

it is our earnest contention that even assuming validity and infringement, only a nominal recovery should have been decreed.

We have been adverted to the fact that the licensee in the Mid-Continent field, Halliburton, has testified that he paid to Perkins \$25.00 per well royalty. This was an inflated valuation. The only warrant for the court of increasing the amount of recovery against defendants to double the amount of the royalty paid by Halliburton was the unsupported guess of one or two expert witnesses—expert as witnesses, but with no practical experience in the actual methods set up as our standard of comparison (Paul Paine, one of such alleged experts, did not even know that the no-plug method was a successful method). The doubling of the Halliburton royalty, as a measure or recovery, has nothing in reason to support it—it is purely arbitrary, and we urge, that even assuming validity and infringement the amount of recovery should be reduced so as not to be higher than that which the only licensee has ever paid. The payment of this \$25.00 royalty was arranged after the consent decree in the suit against Halliburton, and no doubt the parties carefully figured the amount, and Halliburton did not pay anything excessive.

There is not shown that there was any business lost by the Perkins Oil Well Cementing Company by reason of defendants' activities in the field, because it clearly appears that there were many who were opposed to the use of the Perkins method and who were convinced of the value of defendants' method because of the saving time incident to the ability to remove the tight head promptly after the cement was placed outside of the casing.

We urge therefore that even assuming validity and infringement the amount of recovery should be not more than \$25.00 a well for 271 wells.

Conclusion.

We submit that:

(1) The only valuable part of the process illustrated and described in the patent in suit is the spacer 14 and the method of manipulating the casing so as to make the plug operate as an indicator, and that such feature has been dedicated to the public by failure to claim and that defendants had a right to use it.

(2) That the essence of the alleged invention of the patent in suit was barriers to separate the water from the cement.

(3) That defendants did not use the essence of the invention and therefore did not infringe.

(4) That the claim in suit is limited to barriers to separate the water from the cement, and likewise to water as pressure fluid, and to the use of a tight-head to maintain pressure, and that defendants have not used any of such features and therefore do not infringe.

(5) That the subject-matter of the only claim in suit is conclusively shown to be anticipated and void, not once but many times by the evidence of Shreveport, Louisiana.

(6) That the decree finding defendants guilty of contempt and fining them \$3,591.25 and costs, is erroneous and should be reversed.

(7) That even assuming validity and infringement of the patent in suit, the recovery should not be to exceed \$6,775.00 and costs.

Respectfully submitted,

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